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The Inventive Age

AND INDUSTRIAL REVIEW

A JOURNAL OF MANUFACTURING INDUSTRY
AND SCIENTIFIC PROGRESS

Eighth Year.
No. 1.

WASHINGTON, D. C., JANUARY, 1897.

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A Memorable Event.

We print on this page a valuable picture taken at Mount Vernon during the Patent Centennial held in this city April 8th 9th and 10th 1891. It was a memorable celebration and resulted in two very important things; the publication of one of the most interesting volumes of the century and the organization of the American Association of Inventors and

Dr. Toner on the life of the Father of his Country at Mount Vernon. The large steamer Excelsior was engaged to carry the guests to Mount Vernon and when it swung away from the Seventh Street wharf it had on board over one thousand of the happiest brightest and brainiest persons that ever sailed over the placid bosom of the Potomac. The great saloon extending the whole length of the steamer was filled

tions; Oberlin Smith the famous mechanical engineer; Col. J. A. Price, J. Thomas Jones, E. D. Smith, J. F. Harris, C. C. Linindale, Col. J. W. Babson, Prof. J. E. Watkins, Gen. B. Butterworth, Gen. J. C. Anderson the Brick King, L. W. Serrell, W. J. Johnston, of the Electrical World, R. W. Fenwick, W. C. Dodge, Prof. Harry King, Commissioner of Patents Mitchell, Canadian Commissioner of



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MR. JONES. JAMES T. DUBOIS. R. G. DUBOIS. O. E. DUFFY.
E. D. SMITH. MR. NOTTINGHAM. GEO. C. MAYNARD.
DR. R. J. GATLING.

Manufacturers of which Dr. R. J. Gatling is president and George C. Maynard is secretary; and which carries in its list of membership many of the most famous inventors in the United States.

One of the most interesting features of the three days celebration was a grand excursion to Mount Vernon where interesting ceremonies were held at the Tomb of Washington and a fine address from

with men famous the world over for their marvelous inventions. Among this happy assemblage was Dr. Gatling the famous inventor of the Gatling gun; Mr. Plimpton the inventor of the roller skate; George Westinghouse of air-brake fame; L. E. Waterman the inventor of the fountain pen; F. E. Sickles inventor of steam gearing; D. G. Weems, famous in the electrical world for numerous inven-

Patents Pope, Deputy Commissioner Lynch, Chief Examiner McCabe, J. A. Milliken, R. G. DuBois, Dr. Toner, Gen. Gridley and host of other men of distinction in the world of science and invention the names of some of whom accompany the picture printed herewith.

After the arrival of the Excelsior at the Mount Vernon wharf a procession was formed and headed

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Correspondence with inventors, mechanics, manufacturers, scientists and others is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

The INVENTIVE AGE is thoroughly independent.

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WASHINGTON, D. C., JANUARY, 1897.

1896 has given the world the first successful flying machine, and leads us to conjecture whether the present generation won't live to often hear the exclamation: "What! Dare you go by the dangerous and poky rail! The sky express will take you in one quarter of the time and is absolutely safe."

A TWELVE year old Italian boy was suffering from pericarditis and the inventor came to his rescue. Professor Pierce conceived the idea of constructing an instrument that enabled him to draw off the purulent serous matter in the sac. He then washed the heart and its scrofulous covering with the solution of sodium bichlorate, closed up the gap made necessary for the operation, and the boy's pumping machine is now in working order and quite as good as new. Invention and surgery may in time bring the length of human life up to that of old Methuselah.

ON January 2nd, 1897, the will of the inventor of smokeless powder was opened at Stockholm, Sweden. Mr. Nobel, the inventor left the interest on the capital of two million dollars to be divided into five different sums for prizes to be given yearly.

The first three prizes are to be presented to the persons who make the most important discoveries in the fields of Physics, Chemistry, Physiology or Medicine. The fourth prize is to be bestowed upon the person who contributes the best literary work on Physiology or Medicine. The fifth prize is for the person who has obtained the highest achievement in the furtherance of the peace of the world. Persons of any nationality on earth are eligible as contestants for these prizes. This noble inventor has set an example for the other millionaires of the world which they ought to follow.

Two important things grew out of the Chicago Fair for Russia. Certain Russian engineers visited the transportation building and inspected the splendid collection of American engines. They were so much pleased with them that they have succeeded in arranging for the establishment at Nijni Novgorod of a plant for the manufacture of the American type of engine. Another American company has succeeded through the influence of Russians who visited the exposition, in securing control of the great manganese mines at Maripal in southern Russia and they propose to ship the ore to Maripal on the Azov Sea where a big steel plant will be built and placed under the supervision of an American expert. It is said that the Maripal manganese ore required by the whole world.

THE National Association of Manufacturers are establishing in Caracas, Venezuela an exhibition ware house for the display and sale of American products of various kinds. This is a wise move as it will familiarize Venezuelan merchants with our

products and thus greatly enlarge our markets. In the Exhibition hall will be placed only American manufactured products that are salable in Venezuela, and the entire management will be entirely under the control of the National Association of Manufacturers. It is very important that active efforts should be taken by our exporters to secure widely extended markets among the Republic of South America for a broad and liberal policy of reciprocity will characterize the McKinley administration and a golden opportunity will be offered to dispose of vast quantities of surplus manufactured products in these different countries which are now largely supplied by the merchants of the Old World especially those of Germany and England.

Now George J. Gould has turned his mind toward the North Pole and proposes to discover it at any price. He will build a depot of supplies at some place which is always accessible during seasons when navigation is open. When this is done a cordon of stations will be established toward the pole until that mysterious region is finally revealed. This seems the only safe and practical way of making the discovery in the attempt of which so many brave men have heroically sacrificed their lives. Last November Professor S. A. Andree started on a perilous journey to the North Pole in a balloon. His air ship was built at Guttenburg under his own supervision and is said to be the staunchest balloon ever constructed. His air ship contains a car in which are sleeping quarters for three persons and a photographic dark room. The vessel is equipped with sails and it also carries a canoe besides being protected with drag ropes for the purpose of regulating its altitude, the purpose being to keep the balloon not higher than eight hundred feet above the surface of the earth. There has been some difficulty it seems in catching the south winds that were to carry the brave Professor to the Pole in four days and he is now waiting for more favorable conditions. If he is not alert Mr. George Gould will get his cordon of stations established and thus wrest from him the glory of this great achievement and the honor will fall to American enterprise and daring.

It will be of interest to our readers to know the number of skilled persons employed in some of the most prominent trades in this country, for many of our patrons belong to one or the other of these great branches of human industry. One hundred and fifty thousand persons are engaged as stationary engineers and firemen. 200,000 as masons and bricklayers, 100,000 as locomotive engineers and firemen. 200,000 as machinists, 10,000 tool makers, 25,000 boiler makers, 750,000 carpenters and joiners which equals all the persons required to operate our 187,000 miles of railways. There are also 10,000 pattern makers, 50,000 plumbers and gas and steam fitters, 50,000 electric light and electric railway employes and about 50,000 engineers engaged in mining, mechanical and electrical works. Is it not strange that from among all these trades no president has ever come. Out of the twenty three presidents of the United States, seventeen of them have been lawyers, and when we remember that Carlyle calls lawyers "a body of educated rascals" is it not strange again that no nation on earth has ever been blessed with finer and more incorruptible rulers than the United States. Two tailors and two statesmen, one farmer and one planter make up the rest of our twenty-three Presidents, thus among them all we do not find a single representative of the trades enumerated above. Isn't it about time that a member of some of these trades too get into the presidential chair and give the lawyers a rest.

JOHN GUTTENBERG was the greatest preacher the world has ever seen. We can prove it. He invented the printing press and the press is today the greatest preacher of ethics in the world. The daily and Sunday press is filled with sermons on morality and it is estimated that the press of the world is read every day by over three hundred millions of people or by nearly one fourth of the entire popula-

tion of the globe. Spurgeon's voice could only reach two or three thousand people, Spurgeon's sermons printed in tract, pamphlet and book forms has reached many millions. Beecher's voice did not sound beyond the four walls of his great Brooklyn church, but the press carried his words to millions of preachers all over the land, the great Talmadge preaches every Sunday to about one thousand people but his word disseminated through the daily and weekly press are read every seven days by over ten millions of people. John Guttenberg by his wonderful invention has made all this possible. Therefore Guttenberg, is the mightiest preacher of them all and he will continue to preach through the press when the eloquent voices of the great devines are silenced by death. Mighty is invention. The forces increase with the ages and its tremendous work is undying, immortal.

Death of Robert W. Fenwick.

THE INVENTIVE AGE announces with profound regret the death of Robert W. Fenwick, one of the oldest and most respected Patent Attorneys of Washington. While on his way home from his office accompanied by his daughter in one of the Metropolitan street cars, he was stricken with apoplexy and died in a few minutes after being taken to Dr. Munson's office in the Mertz building.

He leaves a widow, four sons and two daughters. Mr. Fenwick was born in this city March 4th, 1832



and, with the exception of eight years, his entire life has been spent at the National Capital where he has been always a public spirited, respected and useful citizen. He was a member of the Board of Alderman and in this capacity he bent his energies in building up one of the finest public school systems in the country. He has often contributed able and interesting articles to the INVENTIVE AGE which have been largely copied by the scientific papers of the country.

In 1861 Mr. Fenwick started in business as a patent solicitor, and shortly afterwards he formed a partnership with Judge D. C. Lawrence and Charles Mason, which still flourishes. In politics Mr. Fenwick was a Democrat, and was for several years Vice President of the Jackson Democrat Association, but during the last campaign he declared himself in favor of sound money. He was a director of the Washington City Bible Society, and a deacon of the E Street Baptist Church, with which he has been connected permanently ever since he was nine years of age, or over fifty years. He was a teacher in one of the Sunday school classes for forty-five years, and contributed liberally to charitable causes.

During the Patent Centennial, Mr. Fenwick took a prominent and important part. One of the proudest and most satisfactory achievements of his life was his election to the historical position of chairman of the first public meeting called to arrange for the great Patent Centennial Celebration. Mr. Fenwick left a host of friends in Washington and throughout the country who sincerely mourn his sudden and unexpected death.

Making Cyclone.

A murderer in an Oklahoma penitentiary has invented a machine to make cyclones with. It is claimed that this machine can create miniature cyclones and thus bring rain in arid regions. It also takes the cyclonic elements from the air in homeopathic doses thus robbing the elements so as to prevent them from combining their forces in a big cyclone which often causes so much danger. The INVENTIVE AGE always has insisted that a bread and water diet would create paresis.

(Continued from First Page.)

by the famous Annapolis band marched up the beautiful winding way to Washington's Tomb where the visitors viewed the marble sarcophagus containing the remains of the Father of his Country. From there the procession wended its way to the beautiful lawn in front of the Mansion and the guests were photographed from which the picture printed in this issue, for the first time, is a half tone cut.

After being photographed the excursionists visited the Mansion and viewed the famous relics and curios which it contains. The address subsequently delivered by Dr. Toner was presented in the Centennial Volume but as many of our readers have never had the pleasure of reading it we give a few extracts of interest to all:

In his Diary for 1760, Washington notes, very briefly, the events occurring at Mount Vernon, and especially matters relating to the management of his plantations. These memorandums, brief as they are, show that he was giving close attention to the improvement of his estates. His personal supervision was only interrupted by occasional visits to Williamsburg to attend the meetings of the Assembly. The following extract from his Diary, at this period, gives a good example, not only of his love of agriculture, but in especial manner shows his ingenuity and fertility of invention and desire to improve the implements of husbandry.

"Thursday, Mar. 6th 1760 fitted a two-eyed plow instead of a duck-bill plow, and with much difficulty made my chariot wheel horse plow."

"Wednesday, Mar. 19th, Peter (my smith) and I after several efforts to make a plow after a new model, partly of my own contriving, was fain to give it up, at least for the present."

His ever watchful attention to the matter of labor-saving machinery in the interest of the poorly-paid and over-worked farmer is apparent throughout the life and writings of Washington. He made it a duty to read the standard works and annual publication on agriculture to obtain useful hints which might be of service to the Mount Vernon plantations.

At this period, nearly all the trades essential to serve the wants of an independent community, were represented and carried on at Mount Vernon; such as milling, distilling, tanning, black-smithing, wagon-making, shoe-making, tailoring, spinning, weaving, knitting, carpentering, coopering, harness-making, brick-making and laying, stone-masons, etc. To a limited extent the facilities of these departments of labor were extended to his neighbors. There were also gunners, to supply game, and men whose business it was to daily supply fresh fish, from the Potomac, for the table; while all the surplus of perishable articles brought to the home house was promptly sent to the overseers of the several quarters. The gangs of skilled workmen and farm hands composing the different departments of laborers on the Mount Vernon Estate consisted in part of slaves owned by General Washington;—dower negroes—slaves owned by Mrs. Washington; slaves hired from their masters by the year; transported convicts serving out their sentences, persons voluntarily indenturing themselves for a sufficient time to pay costs of transportation to America; others whose services for a stipulated period were sold by the shipping-masters to the highest bidder; and mechanics, white and colored, engaged by the month or year, and generally upon a written contract. Washington's exactness in charging each enterprise its just expense, is illustrated in his noting the number of days' labor it required of his carpenters and others in building his schooner at Mount Vernon.

Washington was noted for owning fine horses, he also enjoyed, on proper occasions, extending their use to visiting friends for a dash after a fox and hounds over the Mount Vernon plains, a sport of which he was fond and frequently indulged in himself. In the chase, on his fine horse, he was usually the foremost hunter.

In seasons of harvesting and seeding, or when, any other important work was going on which required special attention, it was Washington's habit to

visit several of his plantations, or all of them, to confer with his overseers before he ate his breakfast. When the full round of the plantations was made, the ride amounted to about ten miles. This ought to have given him, as it doubtless did, a good appetite. On his return to the mansion-house, he would immediately refresh himself with a wash, while the servant would place upon the table in the dining room a fresh, warm breakfast. This meal usually consisted of fresh fish, breakfast bacon or ham, eggs, corncakes, fresh butter, honey and coffee or tea.

Mrs. Washington, with her good taste and characteristic tact, even though the General was a little late, managed to join and cheer him at the table.

The intelligent supervision Washington gave to his plantations between 1760 and 1770, brought them into as fine a condition as any land in the Mount Vernon region was susceptible of. He stopped the washes in the fields, drained the wet lands by proper ditching, made new clearings, refenced the fields, made roads, erected comfortable houses, barns and quarters for his people, rested the old fields in fallow, sowed clover, timothy and other grasses for hay pasture and for enriching the soil and rotated his crops in the most judicious and practical manner. He was a good judge of the quality of land and knew as well as any man that the soil of his Mount Vernon estate was thin and capable of yielding but moderate crops. However he seems never to have complained or expressed an inclination to remove to better land. He owned large tracts of first-class limestone land on the Bullskin in Frederick County, Virginia, which he cultivated with profit. The facts are beyond question that he was deeply attached to his home on the Potomac, and found his greatest enjoyment of life in the peaceful shades of Mount Vernon and in the cultivation of its soil. From 1770 to the beginning of the Revolution he was gradually drawn to reflect upon public affairs, and especially upon the questions, then discussed as to the rights of the Colonies under the Crown. His Diaries covering this period show the frequent visits to Mount Vernon of men of the first character in America who were interested in the politics of the Colonies.

Washington's love of agriculture and a life in the open country led him to see beauty, to an unusual degree, in the forms and colorings of nature; so that in riding through the woods, he was frequently delighted with the grace and symmetry of some tree, a specimen of which he would instantly resolve to have on his lawn and note the fact in his Diary, describing it by the name and where it was to be found, of also where he desired it to be planted.

In a letter to General Lincoln, dated Mount Vernon, 6th Feb. 1786, General Washington uses the following language in relation to a supposed important discovery:

"The discovery of extracting fresh water from salt, by a simple process and without the aid of fire, will be of amazing importance to the sons of Neptune, if it is not vitiated or rendered nauseous by the operation, and can be made to answer all the valuable purposes of other fresh water at sea. Every maritime power in the world in this case ought, in my opinion, to offer some acknowledgment to the inventor."

In his Diary January 22d 1790, will be found the following entry:

"Called in my ride on the Baron de Poelnitz to see the operation of his (Winslow's) thrashing machine. The effect was the heads of the wheat being separated from the straw, as much of the first was run through the mill in 15 minutes as made half a bushel of clean wheat. Allowing working hours in the 24, this would yield 16 bushels per day. Two boys are sufficient to turn the wheel, feed the mill and remove the thrashed grain after it had passed through the mill, but a common Dutch fan, with the usual attendance would be more than sufficient to do it. The grain passed through without bruising and is well separated from the chaff. Women and boys of 12 and 14 years of age are fully adequate to the management of the mill or thrashing machine."

From intimations in letters and other parts of the journal it is almost certain the President sent one of these thrashers to his Mt. Vernon plantations.

It would be easy to multiply examples of General Washington's experiments to promote agriculture and to promote better methods and implements than were then in use in agriculture and domestic arts, but I have exhausted the time at my disposal and, I fear, your patience besides which I think enough evidence has been adduced to make it apparent that the mind of Washington was pre-eminently efficient in devising expedients and all the essential machinery to accomplish in the shortest time and in the best manner, his purposes whether in the management of a farm, the command of an army, or the inauguration of a new form of Government and the administration of the affairs of a nation.

The parentage, the disciplined mind, the associations and pursuits of Washington, from his cradle to his grave, were all so admirable as to fully satisfy the most exacting requirements of the highest standard of excellence in the human character; and each gives assurance that he was pre-eminently deserving of the admiration above that of any mortal who has ever lived. Each act of his eventful life, the purer grows as studied, freed from the passions of the time in which he lived. Is it not lamentable then, and to be deeply regretted that the name of George Washington, the central figure in all history, is not held as too sacred to be mentioned except with reverential praise? He should, at least, be exempt from coarse and inconsiderate gibes and pert, unsavory innuendoes having no foundation except in the depraved imagination of the vulgar, incapable of appreciating the virtues they profane.

Mount Vernon must ever have a peculiar fascination to the lovers of civil liberty, to all who admire genius and have faith in human progress. To climb its hills traverse its walks and pass the portals which sheltered the man who amplified and fashioned this Mansion, planned its gardens, fields and lawns and imbellished all with the choicest trees and flowering shrubs, seems now and ever will in some mysterious way to bring the appreciative visitor near the great Washington. For it was here the youthful surveyor the courageous explorer, the commander of armies, the presiding officer of conventions and the first President of the United States, pursued his favorite employment of cultivating the soil. Here, the purest patriot of all ages occupied his splendid talents and kept his heart in sympathy with the latest improvements in every thing which tended to advance the happiness of the people and his country. Here lived and labored the most felicitous letter-writer in history the greatest exponent of liberty guided by law, the defender of the inalienable rights of man, the possessor of all the virtues. The vitality of the Pater Patriae seems sentient and perpetual here, the patriot's Mecca—once the home, now the tomb of the Immortal Washington!

Glass Souble in Wine.

M. Henri Lavouroix has been making a series of experiments to find how much effect the quality of glass in a bottle has on wine, and the results have aroused the interest of wine dealers. He states there is a direct chemical reaction between the glass and the material within the bottle, and he quotes a case in illustration. A wealthy retired merchant bought in France a lot of costly and rare wines in casks, samples of wine from each cask being given to him by the wine merchant. The new owner proceeded to have his wine racked off and bottled. Some days later some of the wine was served on his table, and he detected a strange unpleasant taste which the wine that he had sampled did not have. A fresh bottle was served, and this was found to be similarly affected. Bottle after bottle was opened, with the same result, and the owner brought suit against the man who had sold him the wine, alleging that it was not like the samples. During the action some of the bottles were brought into court, and it was found that the glass in them had become opaque. These bottles were handed to a chemist, together with similar bottles that had never been filled with wine. An examination showed that the bottles that had been filled had lost a part of their lime, potash, and soda, which had passed into solution, forming compounds with the acid ingredients of the wine that rendered it unfit to drink.

SIXTH ANNUAL MEETING.

Of the American Association of Inventors and Manufacturers.

A number of representative inventors and manufacturers of the United States who are members of the American Association of Inventors and Manufacturers held their annual meeting at the rooms of the Board of Trade in this city January 19, 1897.

The session was presided over by Dr. R. J. Gatling, the well known president of the Association. There were two sessions one in the morning and one in the evening. The morning session was devoted to the election of officers, the address of the President and the discussion of several important questions among which was the passage of the Bill No. 3014, revising and amending the statutes relating to patents, an important piece of legislation which has been actively urged upon Congress by the Legislative Committee of the Association whose Chairman is Arthur Steuart of Baltimore.

Before proceeding to the election of officers for 1897 Dr. Gatling president and the Hon. Gardiner G. Hubbard vice-president announced that they would not be candidates for reelection. Following this announcement Mr. Arthur Steuart offered a resolution of thanks to the retiring officers. The resolution was as follows:

RESOLVED—That the Association of Inventors and Manufacturers desire to express to Dr. Gatling and Mr. Hubbard their high appreciation of the valuable services which they have rendered to the Association during the past years, and their great regret that these gentlemen should deem it necessary to resign the positions which they have held so long and so honorably and acceptably to the members of the Association.

Mr. Steuart chairman of the Legislative Committee then reported the passage of Bill No. 3014 by Congress on the 18th inst.

The important sections of this bill as amended and passed are as follows:

"SEC. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtained a patent therefor."

SEC. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country. This section, as hereby amended, shall not apply to any patent in this country granted prior to the passage of this Act, nor to any applications for a patent in this country then pending, nor to any patent granted on such a pending application."

SEC. 4. That section forty-eight hundred and ninety-four of the Revised Statutes be, and the same hereby is, amended by striking out the words "two years" in every place where they occur and substituting in lieu thereof the words "six months," and by adding at the end of the paragraph the following sentence: And upon failure to complete the case for final action within eighteen months after the filing of the application the Commissioner of Patents may require the applicant to show cause why final action should not be taken thereon; and if upon such hearing the Commissioner determines that the application has not been prosecuted with reasonable diligence, he shall make an order requiring the applicant to complete his case for final action within six months thereafter, and upon the expiration of said six months final action shall be taken thereon. In cases where interference has been declared three years additional time may be allowed for the prosecution of the interference, which time may be extended by the Commissioner of Patents upon its being shown to his satisfaction that due diligence has been shown in prosecution of such action, so that the section so amended will read as follows:

"SEC. 4894. All applications for patents shall be completed and prepared for examination within six

months after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within six months after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable. And upon failure to complete the case for final action within eighteen months after the filing of the application the Commissioner of Patents may require the applicant to show cause why final action should not be taken thereon; and if upon such hearing the Commissioner determines that the application has not been prosecuted with reasonable diligence, he shall make an order requiring the applicant to complete his case for final action within six months thereafter, and upon the expiration of said six months final action shall be taken thereon. In cases where interference has been declared three years additional time may be allowed for the prosecution of the interference, which time may be extended by the Commissioner of Patents upon its being shown to his satisfaction that due diligence has been shown in prosecution of such action."

The following officers were elected for the ensuing year.

President, T. H. Richards, Hartford, Conn.

First Vice-President, Gen. J. C. Anderson, Chicago, Ill.

Second Vice-President, L. W. Serrell, New York City.

Third Vice-President, Phillip T. Dodge.



DR. R. J. GATLING.

Secretary and Treasurer, Geo. C. Maynard, Washington, D. C.

Members of the Executive Council:

C. E. Billings, Hartford, Conn.

Gov. A. S. Bushnell, Springfield, Ohio.

Judge R. S. Taylor, Fort Wayne, Ind.

Col. A. S. Pope, Boston, Mass.

Arthur Steuart, Baltimore, Md.

Marvin C. Stone, Washington, D. C.

G. H. Schulte, Milwaukee, Wis.

James T. DuBois, Washington, D. C.

Lewis Miller, Akron, Ohio.

PRESIDENT GATLING'S ADDRESS.

GENTLEMEN OF THE ASSOCIATION:

The importance of the world's progress and the changes that have been brought about by new inventions, are well worthy of the highest consideration. In the early part of the present century we had no telegraphs to give the people warning of approaching danger, nor had we railways to transport troops and army-supplies quickly from place to place.

It is a matter of history that the British in August, 1814, in a quiet manner, with a comparatively small body of troops, captured Washington and burned the Capitol and the President's mansion, and did other damage. This sad event took place at a time when there were one and one-half millions of white people living in the states of Virginia,

Maryland and Pennsylvania. While the English were having this "picnic" not one-tenth of the people knew they were on their way to Washington. It is evident that had there been telegraphs and railways in existence at that period no such disastrous catastrophe would have taken place. The people at that time had not only no means of communication to warn them of danger, but had nothing but carts and common road-wagons for moving troops and army-supplies. It is needless to say that no such event as the capture of Washington by a land force could occur at the present time. It is difficult to estimate the value of the steam-engine, telegraph, and thousands of other inventions in time of war as well as in peace.

It is safe to say that most of the improvements and progress that have been made during the past hundred years have been brought about by the encouragement of our excellent patent laws, which have been an inducement for the people to make rapid advancement.

Prof. McMaster, in his "History of the people of the United States," informs us that during the war with England, the British fleet having blockaded most of our sea-ports, the people were forced to move freight from one section to another by road-wagons. He says, "As the coasting-trade was cut off by the British cruisers, the wagon was the one method of transportation from North to South, although it required more than a hundred days to send a wagon from Boston to Savannah, and the expense was nearly \$1,000."

To give the Association some idea of what railways have done for this country, it need only be stated what one of the large railway corporations has done, and is doing: The Wallstreet Daily News, in speaking of the Pennsylvania Railroad, says, "It has a capital of \$857,075,600 and 15,430 miles of track that traverses thirteen states. It has 3,756 locomotives, which consume 20,000 tons of coal a day and make runs equal to the distance around the globe every two hours. It has 3,935 passenger cars; 154,000 freight-cars; 350 Pullman-cars; 241 other cars for construction and other purposes, making a total of 158,524 cars. The locomotives and cars, if placed on a single track, would reach from New York to Chicago or ten times the distance from Philadelphia to New York. The rails of the Pennsylvania Railroad, if laid end to end, would encircle the globe and overlap 4,000 miles. The total annual receipts of the road are \$135,000,000, equal to \$372,506 a day and \$15,525 every hour of the day and night—which is two and one-half times as much as that of the Northwestern of England."

Strange to say, at the present day many people can be found who are incapable of appreciating the improvements that have been made, and would be content to go back to the old primitive ways of living. Many such persons think new inventions lessen the demand for labor, when the reverse is true. This country has more labor-saving tools and machinery than any other nation, and it is by the aid of such machinery that the laboring-people of the United States get higher wages than anywhere else; and the wage-earners of this country are better fed and clothed and live in better houses, and have more comforts than any working-people in the world. The multiplicity of pursuits, brought about by the increase of labor-saving inventions, give increased employment to the people.

I stated in a former paper, read before this Association, that it would take a mile square of land to support one savage, who has no tools and machinery to produce results, while a nation of people like the United States, who have immense quantities of labor-saving tools and machinery, can live comfortably 200 or 300 to the square mile.

Senator Daniel, in speaking of the outgrowth of invention, says, "If you ask me the cause of the Northern victory in the Civil War, I would look beyond the smoke of battle and point to its inventors, mechanics, and manufacturers, for through them it accumulated its producing wealth, numbers, and national forces." There is no doubt but what new inventions tend to the increase of wealth and military power of nations. Not a war-ship or firearm that was used fifty years ago in war would be used to-day. Armor-clad ships and high-power guns and other improved arms have entirely superseded them. Smokeless-powders have also, to a great extent, taken the place of the black-powders.

As stated, new inventions have not only increased the war-power of nations, but have been the means of improving and increasing all kinds of industries.

"In 1880 the number of manufacturing establishments in this country was 253,852; and in 1890, 355,401—an increase of 101,549 in ten years. The capital employed in 1880 was \$2,790,272,606; and in 1890, \$6,524,475,305—an increase of \$3,734,202,697 in a period of ten years, which is considerably over one-hundred per cent.

"In 1880 the aggregate wages paid was \$947,953,795; while in 1890 the aggregate was \$2,282,823,265, showing that the wages-earners of the country received in wages in 1890 the enormous sum of \$1,334,869,470 more than they received in 1880.

"The cost of the materials used in 1880 was \$3,396,823,549; and in 1890, \$5,158,868,353.

"The value of products in 1880 was \$5,369,957,191; and in 1890, \$9,370,107,624."

"Such a record of growth in manufactures has never been equalled in the history of the world."

The United States is now the greatest mining country in the world. The increased production of copper last year over 1895 was over 67,000,000 pounds and production of gold reached \$57,000,000; and the production of silver from domestic ores reached a total of over 45,000,000 of fine ounces.

Notwithstanding inventors have done so much for



J. C. ANDERSON.

the human race many have been treated in the most unjust and cruel manner. Gutenberg, who invented printing by movable types, did the world a great service, yet he was persecuted and died a poor man; and Faust and Schoeffer, who had been associated with him, stole his art and got rich, and tried to rob him of the credit of his invention.

The inventors of the cotton-spinning machinery in England were persecuted and shamefully ill-treated; and in our own country most strenuous efforts were made to cheat Whitney, the inventor of the cotton-gin, out of his invention.

Though inventors of the present day need not



ALBERT A. POPE.

fear the violence that drove Fourdrinier from France, and the inventor of the stocking-loom from England, and though they may have free access to the public ear, yet it by no means follows that the road to success is smooth and easy.

Men, and especially governments, are still slow to adopt plans and designs at variance with their old-established notions.

Our patent system, which has done so much for the progress of the nation, was inspired by Thomas Jefferson and favored by the framers of the Constitution. It has had a rapid growth, in 1790 only three



C. E. BILLINGS.

patents were granted; in 1890 over 26,000 were issued.

From the soil men gain their substance; what profit would it be to the people of the South to raise cotton, were it not for the cotton-gin? and how could the wheat-raisers of the Northwest get along, were it not for the reaping, binding, and threshing machines?

Without the telegraph, railways could not be suc-

cessfully operated; and who can estimate the time that is saved by the use of the telephone?

The Patent Office is the only branch, or bureau, of the government that is self-sustaining, and it has done much in placing the United States in the van of all nations. The security of property in inventions by the law certainly promotes the progress of civilization.

It is to be hoped that the time is not far distant when man may be able to bring all the forces of nature under his control, and make them do his will.

An improved printing-press can print 50,000 eight-page papers in one hour, it would take about one-hundred days for one man to print a like number of papers on an old-style hand-press.

Labor saving inventions lessen the hours a man must work. In olden times a man had to work from twelve to fourteen hours a day, to secure a living; now he can obtain a competency by working eight hours a day.

In surveying the past it is not difficult to see what new improvements have done for the good of mankind. Watt, by the invention of the steam-engine, did more for the world's progress and for the good of mankind than ever did Alexander or Napoleon. Watt made it possible for man to in-



W. C. DODGE.

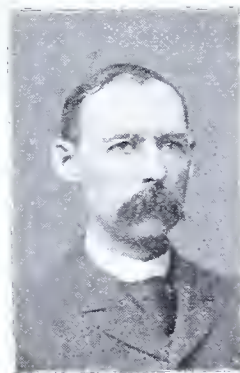
crease his producing-power; Alexander and Napoleon were destroyers of human life.

The inventions of Morse and Bell make it possible to collect news each day from all parts of the world; and the printing-press enables such news and events to be distributed to the people.

New inventions not only add to man's comforts, but enable him to become more intelligent. A man can now travel and see and learn more in one year than he could in ten years a century ago.

Washington in his first address to Congress says, "I cannot forbear intimating to you the expediency of giving as effectual encouragement to the introduction of new and useful inventions from abroad as to the exertions of skill and genius at home."

The first patent-act passed by Congress required



M. C. STONE.

that the Secretary of State, Secretary of War, and Attorney-General should act as Examiner of all applications for patents, to determine whether a patent should be granted or not. It is needless to say that if such officers were required to examine all the applications now made for patents they would be likely to complain of being overworked.

Railroads, telephones, and telegraphs annihilate distance and bring the people of all the States in close communication; such agencies are as so many cords, as it were, to bind all interests, and to preserve the integrity of the Union.

Many persons fear that the stability of our government will be endangered by the diversity of interests and the influence of foreign immigration, but such fears, it is to be hoped, are groundless.

Manufacturing establishments are not now confined to any one section of the country, large factories are now located in the South and in the West, and their numbers are increasing every year.

The South bids fair to become the largest cotton-manufacturing section in the Union; and iron is now produced cheaper in Alabama than in any other State.

The West, with its natural-gas and coal supplies,

has great manufacturing facilities that are increasing every year.

The children of foreign parents, who grow up to be Americans in feeling. In all the schools, public and private—children should be taught to admire and love our system of government, and to revere the Nation's flag.

The business of the Patent Office has increased until it now requires some 600 highly intelligent men and women to conduct its affairs. The Patent Office at the present time is greatly in need of



GEO. C. MAYNARD.

well-prepared classified Digest of all patented inventions. Some 550,000 patents have been issued and are increasing at the rate of about 25,000 annually. At the present time it is exceedingly difficult and onerous to ascertain whether an invention is new or not, and whether it is patentable. It is evident that if a complete Digest of each class of inventions were prepared, it would be the means of saving much time and labor. It is to be hoped that Congress will ere long pass an act requiring such a Digest to be made, and that its cost be paid out of the patent fund which now amounts to over four and one-half millions of dollars.

A bill is now before Congress which provides for some needful amendments to our patent laws; and



T. H. RICHARDS.

it is to be hoped that such a bill will be passed at the present session of Congress.

Our forefathers provided in the Constitution that "Congress should have power to promote the progress of science and other useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries." It will be seen that the Constitution gives equal rights and protection to authors and inventors, but authors, by their watchfulness and vigilance, have secured from Congress legislation greatly in their favor—for instance, the author under the laws is now allowed the exclusive right, by copyright, to his writings for 28 years (with the

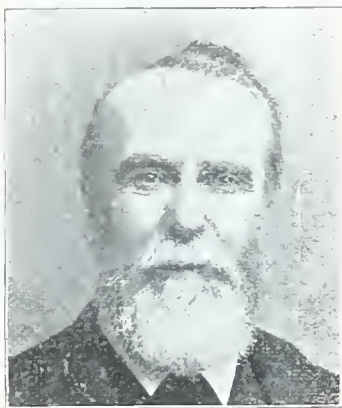


A. S. BUSHNELL.

privilege of an extension of 14 years more by paying \$1 for such protection; while the inventor gets a patent for only 17 years, for which he must pay \$35, without any extension being allowed. This inequality should be remedied, and it should be the duty of Congress to give by law the same rights and protection to inventors that are now given to authors.

Surely, inventors have by their inventions done

more for the world's progress and the good of mankind than authors. It is only by the aid of the printing-press that authors get their writings printed, and find extensive sale for the same. Many inventors have given long years of study, time, and money in making and perfecting their inventions; and by the time there is a demand for the same their patents expire and they never receive



L. W. SERRELL.

compensation for their labors and ingenuity; while authors in most cases realize profits from their writings as soon as they are published.

It is to be hoped that Congress will not be unmindful of the rights of inventors; and that in the near future laws may be passed to improve our Patent system, and make it even more potent for good than ever before.

EVENING SESSION.

At the evening session Dr. Gatling resigned the chair to the newly elected president, Mr. Richards, who was received with applause and presided during the remainder of the session.

A resolution was offered by Arthur Stuart and passed asking the proper authorities to carry out the terms and obligations of the Convention for the Protection of Industrial Property *i. e.*, inventions, trade-marks and commercial names, which was concluded at Paris in 1887. The secretary was instructed to send copies of the resolution to Congress and to the Secretary of State.

The following letter was received from the Commissioner of Patents:

Washington, D. C., Jan. 19, 1897.

Dr. R. J. Gatling, President.

The American Association of Inventors and Manufacturers.

Dear Sir:

I very much regret that I shall not have the honor and pleasure of meeting the members of The American Association of Inventors and Manufacturers this evening, but I find my engagements will not permit me to be present. The questions which seem most likely to come up before the Association, most important to this office, may relate to the securing of more extended room and accommodation for the office, a somewhat larger force for the prompt transaction of the growing business, and the classification division. It is hopeless to get these advantages for the office without the earnest and organized co-operation of the patrons of the bureau, and those sincerely interested in the patent system. An instance however of what may be accomplished is to be found in the success attending the efforts of those who set out to obtain a revision of the patent laws, which bill passed the House of Representatives yesterday and is now before the Senate for action.

Respectfully yours,

(Signed) John S. Seymour,
Commissioner.

After the reading of the above letter Mr. Serrell offered the following important resolution:

Whereas in carrying on the business of the Patent Office in the manner required by law, reference has to be made continuously to over six hundred thousand specifications and drawings of patents granted in this country in addition to about the same number of patents granted in foreign countries and to fifty or sixty thousand books of reference.

And whereas the accommodations of the Patent Office have for years been utterly inadequate for its necessary work, and the numerous appeals for more room have heretofore been unheeded notwithstanding the fact that there is over four millions of dollars to the credit of the patent fund.

Therefore, resolved, that this Association does most earnestly and emphatically enter its protest against the continuance of this great injustice to the inventors and manufacturers of the country and urges upon Congress prompt measures for the removal of the Department of the Interior from the

Patent Office and the proper equipment of the building in the most approved manner for the prompt and reliable transaction of the business of the Patent Office.

Resolved, that as the Patent Office was originally erected for the use of the Bureau and largely at the expense of the Patent fund we protest against the transfer of the Patent Office to any other building.

Several very interesting papers were read among which was one entitled: Benefits that flow from one Patent System, by J. D. Gallagher, which was discussed at length.

Mr. Forbes addressed the meeting on the International Convention.

The thanks of the Association were tendered to the Board of Trade for the use of their rooms.

Another Chance For Inventive Genius.

A device is wanted by newspaper and magazine publishers that will indicate when a paper or magazine has been sold or read. The New York Tribune expatiates on the value of such a device and every publisher will realize the importance of it. Newspapers are sold as a rule (that is to say, dailies) by a throng of retail dealers. The margin of profit on the sale of any single copy, especially of a one-cent paper, is so small that the publishers of all low priced papers have been obliged to concede to dealers the privilege of returning a certain percentage of unsold copies, so that the dealer may be saved from loss. It is understood that the return privilege is conceded by most, if not all, the magazines. Now the temptation is very great to gather up all unsold copies of papers and magazines which are thrown around, and, if they bear no marks of rough usage, to return them to the publisher. The dealer thus makes his profit on the sale of the magazine and then gets all his money back, besides, by returning the magazine itself. In the various offices which allow the return privilege returns are carefully scanned, and all which appear to have been sold are promptly thrown out and rejected. In spite of all that can be done there is, nevertheless, a certain amount of fraud in returns. Many publishers have therefore sought a means of cancelling each copy actually sold, so that it can instantly be detected if any dishonest dealer tries to return it.

W. T. Watson, of Columbus, Ohio, made an attempt to solve this problem in 1895 by patenting a machine to thread a light tape or ribbon through each paper. The reader must remove it before he can read his paper, and its absence in the returns of unsold copies can be detected at a glance. There is much to commend in his idea, and possibly it can be made to do the work. Let some of our other readers try their hands at a cancelling device. There is a fortune in store for the man who will perfect a good, inexpensive and rapid plan for showing whether a paper or magazine has been sold and read or not. For use in newspaper offices it must be something which can be applied to a printing press, so that the papers will come out ready for sale. With magazines, the attachment could be applied after the magazine is printed and bound.

A New Photographic Light.

A remarkable kind of light for photographic purposes is described by C. F. Townsend, an English artist, in the Photogram—light of 400 candle power, he says, for ten cubic feet of gas burnt per hour, and costing only one farthing—noiseless, powerful, soft, and absolutely steady. The efficiency of this new burner is due to the fact that the gas and air are mixed perfectly before reaching the flame, and consequently the combustion is perfect, another important point being that the gas and air travel at the same rate, so that there is no noise or flickering. This desirable end is attained by causing the air and gas to pass through a spiral tube, or series of tubes, whence they issue thoroughly mixed, but it is essential to success that the tubes be cut to a particular pitch or angle, which the inventor has determined. As a protection against any hazard, the mixing tubes are safe-guarded by wire gauze, though even without this the quantity of air and gas actually mixed at one time is declared to be too small to cause an explosion. The air necessary for combustion is supplied by a smaller injector, worked by water pressure; for a large installation a metal one is required, but where only a few lamps are used, a glass one, such as is commonly used in chemical laboratories, is sufficient. The cost of the metal injector reaches, perhaps, to \$5, that of glass only a few shillings; a few feet of iron or composition piping as the case may be, is an additional small item, and the expense of the power is insignificant.

Submarine Cannonading.

The most curious experiment ever made with a piece of ordnance was at Portsmouth, England, says Invention. A stage was erected in the harbor within the tide mark: on this an Armstrong gun of the 110-pound pattern was mounted. The gun was then loaded and carefully aimed at a target—all this, of course, during the time of low tide. A few hours later, when the gun and the target were both covered with water to the depth of six feet, the gun was fired by means of electricity. We said "aimed at a target," but the facts are that there were two targets, but only one was erected for this special experiment, the other being the hull of an old vessel, the Griper, which lay directly behind the target and in the range of the ball. The target itself was placed only twenty-five feet from the muzzle of the gun. It was composed of oak beams and planks, and was twenty-one inches thick. In order to make the old Griper invulnerable a sheet of boiler plate three inches thick was riveted to the water logged hull in direct range with the course the ball was expected to take if not deflected by the water. On all these—the oaken target, the boiler plate and the old vessel hull—the effect of the shot from the submerged gun was really startling. The wooden target was pierced through and through, the boiler target was broken into pieces and driven into its "backing" the ball passing right on through both sides of the vessel, making a huge hole, through which the water poured in torrents. Taken altogether, the experiment was an entire success, demonstrating, as it did, the feasibility of placing submerged guns in harbors in time of war and doing great damage to the vessels which an enemy might dispatch to such points for the purpose of shelling cities.

Mr. Joseph Sachs on Horseless Carriages.

A very interesting and instructive lecture on the subject of "Horseless Carriages" was delivered before the New York Electrical Society on Nov. 19 by Mr. Joseph Sachs, who also repeated the lecture in a more popular form before the Henry Society on Nov. 20. The lecturer traced first the history of the subject, dwelling upon the growing importance of transportation, and then showed how, within the past year or two, experiments of the earlier inventors had now crystallized into definite types. He divided horseless carriages into three main classes—steam, gas, and electric—and then suggested that these also had their subdivisions according to the service required. It was pointed out that the question of motive power was put one among many, the others dealing with the design of the body, steering, gearing, controlling apparatus, attendance, cost of operation, facility of renewing supplies, speed, grade climbing ability, weight, comfort, safety, etc. All these considerations were rapidly touched on in the review of the various types of carriages, a large number of which were illustrated in perspective and by diagram. Mr. Sachs had on exhibition, to illustrate his remarks on the electric carriage, two of the small Riker motors that have been so successfully employed in this of work. Mr. Sachs said that in every respect the electric carriage of to day was at once ideal and practical—as a carriage—but he thought much improvement was still desirable and possible as to the batteries or source of current.

Within a few weeks horseless vehicles will be introduced experimentally in New York City in the service of mail delivery and collection under the auspices of the Post Office department. The idea is due to Second Assistant Postmaster-General Neilson who has given special attention to the subject.

Considerable flutter has been occasioned by the announcement in western dailies of the invention by Grant Brambel, a railway telegrapher at Sleepy Eye, Minn., of an engine which is so potent that a horse power motor can be carried in a watch pocket or a forty horse power can rest easily in a baby's high chair; and at the same time of such an efficiency that it will give at least twice the power now obtained from one pound of coal. The inventor is reported to have closed with an English syndicate for \$1,600,000 for the universal patent right. In the reported interview Mr. Brambel says his patent was issued in December, 1895. On the 3d of that month a United States patent was issued to Grant Brambel for not even a steam turbine and so far as anything in the specifications shows, for nothing but a very crude amateurish form of rotary engine, with no apparently inherent features which would account for even ordinary potency. Its revolutionary character, in fact even the probability of its finding an ordinary place on the market is very much in need of corroborative evidence.

The 25th Anniversary of the Stevens Institute of Technology.

A noteworthy event in the annals of technical education in the United States will be the forthcoming celebration of the 25th Anniversary of the Stevens Institute of Technology, on the 18th and 19th of February next.

The festivities will consist of a banquet, at the Hotel Waldorf, New York, to which representative engineers and technical educators throughout the country will be invited. On the following day the Institute will be open for inspection, and the methods of instruction, together with the apparatus in the various laboratories, will be explained.

Not the least interesting feature of the exhibition will be the collection illustrating the work of the Alumni, and consisting of machinery, apparatus, drawings, etc., representing the product of their activity during the 25 years.

The festivities also include a reception, tendered to the faculty, graduates and undergraduates, by Mrs. E. A. Stevens, widow of the founder of the Institute, at Castle Point, Hoboken, a Promenade Concert and Dance in the evening will conclude the celebration.

The Stevens Institute of Technology was founded by the late Edwin A. Stevens, of Hoboken, N. J., and in 1870 the erection of a building was commenced by the Trustees, Mrs. E. A. Stevens, Mr. S. Bayard Dod and Mr. W. W. Shippen. Dr. Henry Morton, at that time Secretary of the Franklin Institute of Philadelphia, was tendered the presidency of the Institute, and gathered a faculty of eight members about him. To this number others have from time to time been added, as the work of the Institute increased, until at the present time the faculty includes twenty-two professors and instructors. The total number of student graduates is 675, and the number in attendance during recent years has been about 260 each year.

The Stevens Institute has always taken high rank among the institutions devoted to technical education in the United States, and its 25 years of successful effort is amply exemplified in the work accomplished by its graduates in all departments of mechanical and electrical engineering.

An Exhibition Hall for Models.

The Chicago and Atlanta expositions opportunely suggest that definite steps should be taken for the maintenance of a gallery, to be located at the seat of Government and in the spacious Model Halls of this building, for the display of the arts and manufacturers of this country, and where the 158,000 valuable models now in the custody of the Patent Office may be fittingly deposited. New models and exhibits, at the inception of any new art, would be added to this collection, and in a brief time there would be open for the public benefit and without expense to the Government a display of skill, ingenuity, and effort unsurpassed by any like exhibition in the civilized world. I fully agree with my predecessor, Mr. Commissioner Mitchell, that it was a public calamity when the Office was compelled to suspend receiving models for lack of space in which to exhibit them. Most important inventions have been made since that time, and at the close of the Chicago Exposition, through the co-operation of manufacturers and inventors, this Office secured many complete exhibits. If the Office were in possession of sufficient space, all these exhibits and patented models could be attractively arranged so as to make a historical exhibit, illustrating step by step the development of the arts, and one which would be of international interest and of inestimable value. The effect upon the industrial and intellectual world of making this Office a repository for working and illustrative models to attest the progress of science and the useful arts would be broad and deep. It has become history that in all periodical depressions the revival of business is first seen in the activity of industrial enterprises.

First American Paper Machine in England.

The first American paper making machine will be shipped to England next January. It will weigh from 125 to 150 tons. The machine is to be 137 inches wide and equipped with every modern device including thirty large drying cylinders. It will be set up in the London Daily Chronicle paper mill at Sittingbourne, and the contract requires that it will be ready for operation April 1, 1897.

TELEGRAPHING WITHOUT WIRE.

A Young Danish Sailor Constructs a Wireless System of Communication.

A young boatswain of the Danish navy, P. Sorensen, has constructed a telegraphic apparatus by which it is possible, without any direct line from land, to communicate with a ship at a certain anchor ground.

An electric battery is placed on the shore; one pole is in contact with the water or moist earth, while the current from the other pole, through a telegraph key and a revolving interrupter, is conducted to a cable, which is laid out to the anchor ground and placed round the latter in a coil with a diameter of 1,000 to 2,000 feet.

On board the ship, which is situated at the anchor ground or a little outside the coil, there is a small solenoid with which a telephone is connected.

When communication from land through the telegraph key is given a bell sounds on board the ship, by means of longer or shorter signals, based, for instance, on Morse's alphabet. The apparatus may also be constructed in such a way that one will be able to answer from the ship. The inventor thinks he will succeed in getting so far that people can simply speak to one another as in a common telephone.

Mr. Sorensen carried on his experiments for two years before he reached a satisfactory result. The Home Department has permitted him to establish a telegraph between the lifeboat station at Tyboron and the anchor ground of the steamship *Veestjysten*, so that people on land may always be in communication with the ship. The expense in connection with this undertaking was about \$8,000.

An electric arc lamp is automatically lighted on the shore opposite to the anchor ground at the same time of telegraphing. It is to be raised, automatically, to the top of a pole and throw its light over the ship.

Two vessels at sea will also be able to telegraph to one another when they both have a solenoid on board. The distance in which they will be able to do so depends on the length of the wire and the power of the electric current. Flag signals between men-of-war in time of war may easily be discovered by an enemy—it is now not necessary to use them.

Foreigners have in vain spent large sums of money to reach the result which has now been attained by this energetic and clever boatswain, who is essentially a self-taught man.

Patents in Japan.

Negotiations have been concluded establishing a new treaty with Japan and it carries some provisions of interest to American inventors. One article of the treaty provides, that the citizens or subjects of each nation shall enjoy in the territories of the other the same protection as native citizens or subjects in regard to patents, trade-marks, and designs, upon fulfilment of the formalities prescribed by law.

This treaty is one of a series which Japan has been concluding during the past two years with all European countries, except Spain and Portugal, and with several South American countries, all of which become operative in 1889. The texts of all the treaties are essentially the same. Germany has just ratified for immediate enforcement the article regarding patents, trade-marks, and designs, and the Japanese envoys at the various courts of Europe are negotiating with the treaty powers for similar ratification of the article.

The initiation, both in the formation of the treaty and in the hastened enforcement of the article in question, was taken by the Japanese, who are strongly desirous of increasing and extending the intercourse between themselves and the nations of the world. The article on patents is an important one, and its adoption will redound to the advantage of the people of both nations.

Its provisions do not imply a simultaneous patent in one country upon its allowance in the other without due process of law and consequent changes, but merely puts Japan on such a mutual footing in such matters with us as we enjoy with the countries of Europe, and is another step toward taking down the barriers to foreign intercourse, which even yet are numerous and considerable in Japan. The Japanese patent law is essentially similar to that of England and France, upon the civil codes of which countries the Japanese law in general is founded, but the provisions of the law have hitherto applied only to inhabitants of Japan. As the powers have not enjoyed reciprocity with Japan in this matter, inventors have had no means of international protection.

Geipel's Steam Trap.

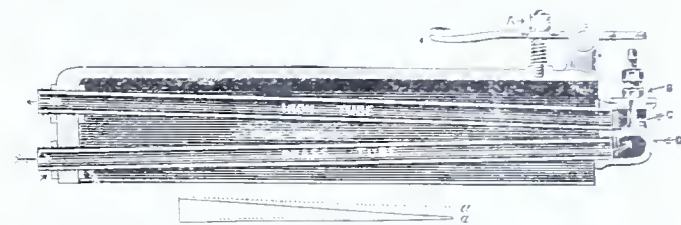
We illustrate the Geipel Steam Trap, which has some features of particular interest.

The illustration shows the trap with the valve free to open and discharge. Heat expands the lengthens the brass pipe, causing the valve to rise and closing it against the lever. The rise in temperature of water contracts the tube, causing the valve to fall away from the lever allowing it to open. Thus when there is water in the brass pipe the valve will always be open, and when there is steam it will always be closed. It is apparent therefore, that the trap is capable of delivering a stream of water equal to the full bore of the pipe, if water in sufficient quantity is present to be removed.

The only working part to this trap is the valve, and that can be seen rising and falling as the trap performs its duties. By pressing down upon the lever the resistance to the valve opening is removed and a simple means is thus afforded of blowing through when necessary.

The trap consisting only of two tubes, there is no place in which scale or dirt can lodge. It will work equally well in any position, and if placed upside down will drain entirely dry, it cannot therefore freeze.

This trap has been attached direct to the jackets of steam engines and being compact in form, it is



not unsightly when placed on an engine base plate. It will remove water as rapidly as formed from any point of condensation.

It has been largely used in connection with heavy pressures, and it works equally well at a pressure of 1 lb. per square inch.

Amongst the users abroad we notice the names of: The Earle's Shipbuilding Company, Palmer's Shipbuilding Company, John Penn, Wigham, Richardson & Sons, Willans and Robinson, makers of the famous Willans engines.

And many others whose names are household words in the engineering world.

The traps are not high priced, and it would appear that there should be room for another article in this trade. Thorpe, Platt & Co., 97 Cedar Street, N. Y., are the sole manufacturers.

The Telephone of the Future.

A Moscow electrician, M. Kildischewsky, claims to have made a very important discovery in the improvement of telephonic communication. The essential principle of the improvement is that distance makes no difference to the carriage of sound, or, at least, that a telephonic communication may be carried over distances as long as in the case of a telegraphic current. In the presence of the chief of telegraphs and the departmental engineer at Moscow, and using an ordinary telegraph wire, M. Kildischewsky a few days ago made a very successful test of his invention by communicating with Rostoff on the Don, a distance of 980 miles. Ordinary speech, music and singing were heard with as perfect distinctness as if the communication were made between two local Moscow stations. M. Kildischewsky, it is announced, will now proceed to London to test his discovery by experiments with one of the Atlantic cables between that city and New York.

That the invention of labor-saving machinery is not detrimental to labor is strikingly shown by statistics. The records of the labor bureau of the United States show that, from 1860 to 1880, the most prolific period of inventions, and the most intensified in all directions of their introduction, the population increased 59.51 per cent., while in the same period the number of persons employed in all occupations—manufacturing, agriculture, domestic service, and everything—increased 109.87 per cent., and in the decade from 1870 to 1880 the population increased 30.08 per cent., while the number of persons employed increased 30 per cent. As shown by the investigation of a committee of the United States senate, wages have increased 61 per cent. in the United States since 1860. And, as we all know, during the same period the cost to the people of nearly all manufactured articles has been decreased in as great if not greater ratio.

NEW INVENTIONS.

The wheel of inventive progress still turns with its usual rapidity, notwithstanding the fact that the inventor is a "victim" of the hard times as well as the rest of humanity. Although thousands upon thousands of patents have been issued, covering almost every conceivable need, new ideas are being continually brought forth in improvements and from unexplored fields of invention.

LOCOMOTIVE WHISTLE.

There are some things which have been looked upon for a long time as being almost perfect, the locomotive is one of these. Yet here comes a genius with an invention for a locomotive whistle one that will put forth its discordant voice with out the assistance of the engineer.

This whistle, of course, is automatically operated, and is set to work when the engine reaches certain blocks that are arranged along the track at long intervals, principally near crossings.

The blocks have beveled edges which are struck by the ends of depending arms that fall from each side of the engine. The arms are connected by gearing with the whistle, so that when their lower ends engage the blocks, the resulting resistance exerts its force upon the gearing which pulls the whistle-lever. If the engineer falls from his cab, goes to sleep or sits and reads his paper while the iron horse is devouring distance, the whistle will go right on attending to its noisy business, screaming its note of warning whenever it meets a "blowing-block."

FOR SAVING PEOPLE BURIED ALIVE.

There is a recently patented invention, which, while having nothing to do with railroads, may sometime be brought into use by unlucky happenings to which they seem so liable. This new idea concerns the dead, or those mistaken for dead, and represents a burial case with something that a wit might call a smokestack. But it is an air tube which runs from the buried case up to the ground surface, and provides a means for obtaining fresh air if the supposed dead should come to life. Besides this the tube has a rod within, extending from the coffin to the surface, where it engages a normally horizontal shaft carrying a signal. The end of the signal shaft connects with a small box situated at the upper end of the tube, and containing mechanism for operating the shaft and an audible signal. If a person buried with this equipment comes to life, movement of the body will release a sealing-flap at the lower end of the tube, let in the air and at the same time put the rod in motion which elevates the flag and starts the audible signal.

EXPLOSIVE PROJECTILE.

In the line of killing apparatus a new explosive projectile makes a bid for recognition by those who have the affairs of war in charge. Mr. James K. Bakewell of Allegheny, Pa., is the father of this explosive idea. The shell contains a high explosive (dynamite) which by a chilling compound is kept from prematurely going off, when fired from a gun. Besides the means for keeping the dynamite cold until it gets ready for business, on ship board or in Fort—the shell has stored within it a slow-burning compound that relieves the explosive of its chill and puts it in condition to transfer the chilling quality to the enemy.

FOOT WHEEL.

The bicycle may have a rival in this country ere long. In London the silent steed is not having it all its own way; for the foot-wheel or roller skate is much in the public mind and on the public foot, in that city. It is not to be thought that the Yankee can be surpassed when it comes to wheels, head or foot; and this is demonstrated in a new American foot-wheel, for which a patent has recently been issued. The inventor calls this speed producer a roller-skate; but where the "skate" comes in is difficult to see. It has the appearance of a bicycle wheel, showing spokes, inflated tire, air valve, etc. The resemblance to the old roller affair is only in the foot plate, which engages the shoe of the wheeler. The plate is directly over the wheel, to the axle of which is attached uprights that support the foot-rest and extend upward as braces for leg and ankle. It is not to be supposed that this speed maker will eclipse the glories of the bicycle. But if it gets a foot-hold in public attention, many people will be seen skimming along as if they owned the wings of Mercury. The fact that the "skate" has only one wheel, may make its mastery somewhat difficult; but if it offers a means for pleasure, one wheel, or a dozen, to the foot, would be mastered by the sportive American.

ELECTRIC STEAM-MAKER.

The electric field continues to yield its crop of inventions. One of these is an engine in which power is generated by the subtle current. In this a cylindrical vessel is employed, into which is led wires connected outwardly with a dynamo, and inwardly with a float resting upon liquid and carrying a number of conducting-plates. Above the steam generator in the vessel which is lined with non-conducting material is a heating-coil which is connected with the generator by an electric supply source. When the vessel is partly filled with liquid and the current turned on, steam is quickly generated. This does away with fire contact with the boiler, and the current supply-source can be kept at a distance.

ELECTRIC MASSAGE.

Another electric inventive idea just out, is that which concerns therapeutics and massage. It is an apparatus that would apparently do duty as a printers roller. But instead of being used for a spreading ink, it is employed for spreading electricity through human bone and tissue. The invention is called an electric roller, and is a cylinder consisting of a series of contiguous face plates composed of different metals (copper and zinc) for generating electricity. The cylinder revolves on a shaft attached to the two ends of a bifurcated holder, from the center of which extends the handle. The whole arrangement is very simple; and if it performs the double work of kneading muscle into vigorous health and imparting a curative current at same operation it should come as a boon to the rheumatic and others whose frames are haunted by the curable ills of life.

MAGNETIC ORE SEPARATOR.

Means for separating metals from ores has called forth a great deal of inventive effort in the past, and there have been a large number of processes mechanical, chemical, etc.—for this purpose, and especially for obtaining the precious metals. A magnetic ore separator is one of the latest of these inventions for which a patent has been granted.

In this machine a series of magnets are mounted upon a central shaft that is surrounded by two chambers, one of which revolves about the magnets. Between the outer and inner chambers, the ore, that has been previously reduced to powder passes, being fed to the cylinder through convenient holes, coming in contact with the revolving magnetized cylinder's surface, where the metal, after leaving its powder vehicle, adheres until it is released. When this occurs, it passes off through a hole in the lower end of the separator, while the refuse matter is discharged at another orifice.

BALL BEARING CAR WHEELS.

And now we are to have ball-bearing car wheels, if a recent invention for this purpose meets the approval of railway magnets. In this event the hot-box should be a thing of the past; for it seems that smooth running should follow the use of ball-bearing axles. The design for this new application of steel balls, represents them, as used in most wheels, with the bearings around the axle heads, which are of greater diameter than the axle and have grooves on their inner sides running from the periphery of the heads toward the axial line of the axle, which has threaded portions next to the heads. To the rim of the wheel two protecting discs are bolted.

WATER-POWER FAN.

The power that belongs to confined water continues to find new outlets for its usefulness, one of the latest being a fan driven by this means. The fan is fixed horizontally to an upright shaft that extends downward through a tube to a water wheel, into which it fits. The motor-wheel lies flat, and is encased by a circular water receptacle having an inlet through which the water enters for its impact with the wheel fans or cups when motion is required. The apparatus rests upon a pedestal and can be used in any place where water can be piped.

FOR MUSIC COMPOSER.

A music writing machine that is something on the order of the type-writer, is the lately patented invention of Mr. R. M. Saint of Des Moines, Iowa. With the machine this music composer should be able to get his creations well set forth without the assistance of the publisher, if it "fills the bill."

The music writer has a base in which a frame is mounted so as to move longitudinally of the base. A track frame is fixed to this and a carriage mounted in it to slide freely transversely while carrying a number of type-bearing keys. A sliding rack-bar is mounted on the track frame, to which is attached an indicator, with one point adjacent to the keys and another near the paper to be operated on. There is a shaft mounted in the track frame, bearing a pinion on one end for engaging a rack

and having on the other end a ratchet wheel, and a thumb-lever bearing a spring actuated pawl, engages the ratchet. In operating the machine the type bearing keys are pressed downward upon the paper, which lies flat before the operator, who while manipulating the keys with one hand, works the adjusting wheel and thumb-lever with the other.

PHOTOGRAPHIC FLASH-LIGHT.

Not long ago, a photographer after taking some flash-light pictures found strange results, unlooked for. When the pictures were developed it was noticed that the sitter appeared in the picture as a "transparent man," and that the chair in which he was sitting could be distinctly seen through his body. This may have been due to the flashes, (there were two of them) but if so the mystery is still inexplicable. A new flash-light was recently patented by Messrs Rathburn and Bebb of Pawtucket, R. I. It is of the electric pattern, and consists principally of a stand, a portion of which is an electric conductor; a cartridge having an electric wire adapted to ignite a charge of flashing powder, and means for pressing the igniting wire against the conducting portions of the stand.

A New Invention.

Science has achieved another wonderful success in that it has made it possible for deaf and dumb persons to hear every sound of music that is in an opera when sung on the stage. The unfortunates have to place their hands in a trough of salt water that is attached to a funnel on the stage by magnetic wires, and in this way the music is heard through the hands. It is said that the deaf enjoy the process as rapturously as those who are able to hear in the ordinary way. The sound waves are caught in the funnel on the stage near the foot-lights and conveyed along the wires into the water where the hands of the listeners are immersed. Every vibration is recorded with fidelity and it permeates the being of the auditor, producing results as exquisite as when the sound waves reach the ear in the ordinary way. Of course it is only a question of time until the mutes will be able to understand spoken language. Articulate speech can be transmitted as readily, and perhaps more readily than prolonged strains of music or other inarticulate sounds. In this way the deaf may be made to hear in a hitherto undiscovered manner. The invention promises to be serviceable to others besides those who are afflicted with dumbness. It means that speech can be carried an indefinite distance over wires and distinctly heard by any one who cares to submerge a part of his anatomy in water. Operas can be listened to by the bathers in a natatorium; speeches can be heard by standing in the water barrel; sermons can be listened to by the indolent wealthy while preparing their toilets and temperance lectures can sink deep into the heart of the man who has "made a night of it," while he sits with pounded ice on his head, taking a hot foot bath. There is no telling in how many ways this invention may be made useful. Enough is here indicated to insure its generous welcome by every one.

Powdered Stone Brick.

Professor Brice of Washington, D. C., has invented a new and valuable process for making bricks. These new bricks are manufactured from powdered stone or elements contained in stone such as sand, clay, etc. These substances are mixed with a prepared "plan" which acts as a band holding together the particles which are thoroughly annealed by heating. It requires only ten hours to make these bricks ready for use. While the time required in making the ordinary brick is from eight to thirty days.

There is a hard-working and earnest inventor and scientific investigator in New York city who has every reason to felicitate himself over the success of the Niagara Falls electric transmission. The Tesla polyphase system, the invention of which was first announced in these columns in 1888, made this great achievement possible. The result at Niagara will be untold value to the development of the electrical field and the long-distance transmission of power.

The new 10-wheel Baldwin passenger engines, which were among the 75 new locomotives recently purchased by the Baltimore & Ohio Railroad, and which were designed by General Superintendent Motive Power Harvey Middleton, are proving to be the finest and fastest engines in use on any railroad in this country. Their speed seems to be practically unlimited, and even with a mile a minute schedule they are able to make up lost time.

THE PATENT OFFICE.

Its Importance, Condition and Needs.

FIRST PAPER.—BY W. C. DODGE.

But few persons have any just conception of the importance of the Patent Office, to the economic interests of the country.

In his report for 1873, Commissioner Leggett said:—

"The inventive genius of our people has largely contributed to the enormous growth in the manufacturing industries of our country during the last twenty-five years. By as careful an inquiry as I have been able to make, without legal authority to obtain exact figures, I am satisfied that *fully nine tenths of all the capital invested in manufacturing in the U. S. is thus invested because of the security given to it by patents.*"

An institution or system which is so intimately connected with national industry and prosperity certainly deserves the attention of the national legislature, but as is well known it is almost impossible to get anything done by Congress to better its condition.

As stated by Commissioner Leggett in 1874, it has been made a political office. As a result the position is usually given to some Member of Congress who has failed to be renominated or elected, or to some man who has been active in politics as a reward for party service, with but little regard to his knowledge of, or fitness for the business, and who usually takes the place as a means of learning the business or of advertising himself to the public, with an eye to securing business in the future; as proof of which I cite the fact that there is not an Ex-Commissioner or Ex-Ass't Commissioner living today who is not in the business.

Since Mr. Lincoln's inauguration in 1861, there have been 16 commissioners and six acting commissioners, their average term, including those who held the office for four years, has been but about 19½ months, or if we take the commissioners alone about 22½ months.

Of these, five were ex-members of Congress. One was not even a member of the bar; few had any practical knowledge of mechanics or of patent law, and others no knowledge of the practice, the bureau and its condition or needs.

Admitting that all were honest and did the best they could, how could it be expected that they could run the office as it should be? In the nature of things it could not be expected. It would be as unreasonable as it would be to select a blacksmith to repair a watch or a tailor to build a house, and expect success.

Those not knowing anything of the business, cannot direct how it should be transacted, and hence the whole business of granting or refusing patents is left to the 35 examiners and their assistants. The result is we have as it were, 35 separate Patent Offices, each being run according to the peculiar ideas, caprices or whims of the examiner in charge.

Of these scarcely any two agree on such important questions as—what constitutes patentable invention—what constitutes a patentable combination—the proper form of a claim, and so on to the end of the chapter. What one will allow, another will reject and *vice versa*.

As illustrating the contrariety of opinion among the examiners, I have five letters from five different examiners as to the use in a claim of the words "substantially as described." The first requires them to be put in—the second, that they be taken out—the third to put them in—the fourth to take them out, and the fifth that they be put in!

This contrariety of opinion exists with reference to other matters as well; and as frequently the new commissioner knows little or nothing of these questions, he cannot instruct his subordinates and hence they become "a law unto themselves."

This condition is greatly aggravated by the fact, that under the technical examinations of the civil service, the most of those appointed as Assistant Examiners are young men fresh from college or school, having little or no knowledge of practical mechanics, and who, never having been engaged in business of any kind, are lacking in that experience and maturity of judgment necessary to properly decide the questions which come before them.

And what makes the matter still worse, a very large proportion of them seek the position for the two fold purpose of learning the business and at the same time paying their way through one of the law schools here, with the intention of resigning in two or three years, and going into the business. As a result, this class of examiners have converted the Office into a "Moot Court" in which to exhibit their skill in raising all sorts of technical objections, instead of making a thorough examination of the art and thereby securing the issue of none but valid

patents in which it is safe for a manufacturer to invest.

And what makes it still worse in the fact, that there is as much difference of opinion and action among the commissioners as among the examiners. To such an extent has this difference existed that Commissioner Paine in *ex parte* Schoeninger 15 O. G. 384, in referring to contradictory decisions on the same question said: "It is not to be denied that the record of the Office on this question is somewhat ragged"—there having been four decisions—by four commissioners two one way and two the other—thus leaving the question where it was when it was first raised years before.

In 1888 it was held by the then commissioner that a party could have but a single claim in a design patent, no matter how many features, or sub-combinations there might be, and that too, notwithstanding Commissioner Fisher in *ex parte* Bartholomew in 1869 and in *ex parte* Shepard in 1870, held that he could; and notwithstanding also, that the Supreme Court in 1885 in the case of the Hartford Carpet Co., vs. Dobson 114 U. S. 439 passed upon a design patent in which there were nineteen claims—the patent being attacked on that very ground; and in its decision the court in special reference to that point said. "We see no objection to it."

Thus we see not only the examiners and the commissioners disagreeing one with another, but even overruling the Supreme Court!

Under such a condition of affairs the most competent attorney cannot advise his client with any certainty as to his rights, or what the action of the office will be in any given case. About the only thing of which he is certain is technical objections, and delay. These will meet him at every step.

Even if a commissioner in the course of time becomes educated on these matters, he soon leaves to be succeeded by another, perhaps equally inexperienced, and thus the evils are perpetuated.

As Commissioner Leggett said in his address to our Patent Convention in 1874, "No man knows what to expect when a change of Commissioner takes place. You do not know what the policy of the incoming man is to be. You wonder and wait. Probably he will desire to make his mark and therefore will feel that he must change things somewhat or he will not be felt. It will never do to walk in the shoes of any one else fearing he will not make a mark of his own. "New rules and new practice is the result, sometimes to the extent of changing the law in order to make it what he thinks it ought to be, or to remedy what he considers an evil; and thus we have as Mr. Leggett said, "a vacillating policy injurious to the patent system and to inventors."

As a result of these several causes, the Patent Office and practice are in a bad condition. The office is lacking in room, force and means necessary for the proper and prompt transaction of its business while the practice has become as complicated, technical and uncertain as that of the criminal courts.

A Deer by Flash Light.

The marvelous strides in photography are an increasing wonder, what is a common thing today would have been a marvel six years ago. Today boys of ten years of age can make photographs that would have given the highest satisfaction to the expert photographer in 1880, and now out west they have even been successful in having a wild deer photograph itself by flashing light in the trackless



forest and at midnight. This rather over tops and out classes many of the wonderfully photographic events of 1896. We give a cut of this rather remarkable event showing the deer "as it took itself." This picture was taken in the Coast Range Mountains about fifty miles from this place and there was not a human being within a mile of the animal when the deer pushed the button and the camera did the rest. Mr. Charles Hughes of Red Bluff,

California who is a subscriber to the INVENTIVE AGE, was an accomplice in this remarkable photographic feat in as much as he invented the clever device that resulted in a work never before so successfully accomplished. Here is Mr. Hughes letter enclosing the interesting picture which we publish:

Editor of the INVENTIVE AGE: By this mail I send you a picture of a deer which was taken by flash light at night by the deer. The picture was taken in the Coast Range Mountains about fifty miles from this place and there was not a person within a mile of the deer when it was taken. By a mechanical device arranged by myself the deer in touching a linen thread while moving along a trail at midnight opened the mechanical movement, which opened the camera, flashed the magnesium powder and then closed the camera; it all being done in the fraction of a second.

We hope to get other photographs from Mr. Hughes of this nature, which will appear in the INVENTIVE AGE.

New Panoramic Camera.

A revolving camera invented by a couple of Chicago geniuses, offers new possibilities in auto-photography. The Chicago Tribune recently presented a view of Lincoln Park skating rink made by this remarkable invention. The panoramic camera presents multitudinous possibilities in photography. For instance, one of these operators with a little skill as a "lighting change artist" can enact an entire tragedy all by himself. He can first impersonate a murdered man falling with a bullet wound in his heart. Then on the next turn around the camera he can appear as the murderer, pointing the smoking pistol at his unfortunate victim—himself. Further on in the picture may easily be seen a policeman rushing to arrest the villain—himself—and lastly a doctor hurrying to give medical assistance to the wounded man, also himself.

These two new lights in the photographic world are Peter N. Angsten and Charles H. Gesbeck. They live respectively at No. 12 Alaska street and No. 812 Clifton street on the North Side, and are both hard working young mechanics. Mr. Angsten, while at a technical school in Germany, did considerable work with the old original revolving camera which used plates. After his removal to this country photographic films were invented and he began immediately to apply them to a panoramic camera. As early as 1890 the two inventors took pictures 180 degrees in extent, and from that time on they have improved and perfected their apparatus until they now have instruments in sizes varying from huge boxes which will take pictures four feet long to little toys which record exposure on a strip one and a quarter by five inches in diameter.

These two inventors did not apply for a patent until about a year ago, and were brought at once into interference with a number of other investigators along the same line, but they were able to prove the priority of their claims and were granted a patent last September. Thus Chicago is the real home of the first perfected panoramic camera, thought by many to be destined to make a revolution in the art of outdoor photography.

Some of the views taken by these instruments are a revelation to the operators, who have previously been under the necessity of making panoramic views by means of a number of jointed photographs. Pictures have been taken of Lincoln Park showing the entire north end from the lake shore to Clark street, of three street intersections at once, of the entire lake front during a yacht race, and of a number of similar subjects impossible with any other kind of an instrument. The view taken of the skaters on a bright day in Lincoln Park shows the entire extent of the south pond. It was selected from a point almost exactly across from the Grant Monument and shows the whole field of ice covered with a merry crowd. To take this by the ordinary picture taking instrument would be a practical impossibility.

REVIEWS.

Short Stories of our Shy Neighbors. By Mrs. A. B. Kelly. Cloth, 19mo, 214 pages, illustrated. Price 50 cents. American Book Company, New York, Cincinnati and Chicago.

This book is the latest of the "Electric School Readings." It tells about the birds, beasts and insects that we might see almost every day—had we but our eyes open. The child who studies this book, however, will learn to watch for all that Nature has to show him.

The few technical terms are easy and often repeated. The style is delightful both to children and adults. The science lies not in externals but in the underlying spirit.

A Report Worth Reading.

Commissioner of Patents Seymour has given the country the best report on the Patent Office that has ever been issued. It is comprised of solid chunks of matter of great importance to inventors the world over. We give below a few extracts relating to inventions used in farming.

Plows.—In the class of plows 10,342 patents have been granted. A notable evolution in tilling the soil, over the primitive mode employing a shovel blade, is the use of disks that penetrate the earth and revolve in contact therewith. In the breaking of prairie land, cutting disks are harnessed to steam motors and are adapted to break up at one operation a wide strip of ground. In the class of steam plows, the patents to Newsom, No. 349,807, September 28, 1886, and Brown, No. 424,265, March 25, 1890, are of this class. One hundred and ninety-one patents have been issued for steam plows.

In breaking plows, Underwood, No. 177,668, May 23, 1876, is among the first to employ the disk plow; while the plow of Atkins and Roberts, No. 543,118, July 23, 1895, illustrates the advance made in the art.

A type of the disk hand-wheel plow is illustrated in the patent to Ruggles, No. 422,161, February 25, 1890.

Another important type, which has received considerable attention since 1870, employs a gang of plows arranged to plow back and forth, without turning like the well-known hillside plow. Unterlip, No. 301,306, July 1, 1884, and Fay, No. 536,949, April 2, 1895, show such machines designed for horsepower; while Sack's, No. 386,162, July 17, 1888, is a heavier machine for use with steam power.

The history of the wheeled plow shows a gradual improvement. The patents to Hasbrook, No. 138,329, April 29, 1873; Casaday, No. 466,945, January 12, 1892, and Sater, No. 501,607, July 18, 1893, show this. In this subclass 1,321 patents have been issued.

Electricity is beginning to be employed in the art of tillage, as is shown in the patent to Roberts, No. 509,556, November 28, 1893. This is analogous to steam plows in its heavy multishared construction, designed for plowing large tracts of level ground.

Harrows.—Probably the most noteworthy patent issued in the general class of harrows and diggers is one granted to David L. Garver, March 26, 1878, reissue No. 8,142, of a patent obtained in 1869, for a curved spring tooth. This patent nearly revolutionized the harrow industry, and has been, perhaps, the leading type of harrow for the last twenty years.

Garver's patent was followed by one to Nishwitz, No. 262,975, August 22, 1882, for a harrow comprising two ranks of oppositely curved trailing teeth, an implement especially popular in foreign countries. In 1886, August 17, a patent, No. 347,745, was granted to Stoddard for a harrow comprising two gangs of concavo-convex disks attached to a frame and capable of horizontal adjustment. These three distinct types of harrows have superseded largely all prior devices in that class. For harrows 1,532 patents have been issued.

Transplanters.—Among important patents in transplanters are those issued to Pitt, March 20, 1894, No. 516,745, and Stevens & Swart, May 8, 1894, No. 519,460. These dig the plant trench, distribute the fertilizer, set the plant, pack the earth, and water the plant automatically.

A novel device was patented by A. M. Riverory Aguiar, December 31, 1895, No. 552,449, for planting sugar cane. In this a plow digs the trench, a knife cuts the cane into proper lengths, which drops into the trench and is covered by scraping blades at the rear of the machine.

Planters.—In the class of seeders and planters the substitution of the force feed for gravity feed marked an important step. The feed devices usually consist of a cylinder having a smooth and a fluted part working in a cup through a rose or ring beneath the hopper, with provision for adjustment, to graduate the flow of seed, the smooth portion acting as a cut-off. The patents to Bushnell, August 29, 1876, No. 181,521, and Riter, November 9, 1880, No. 234,335, illustrate this subclass in which 199 patents have been issued.

The shoe drill has largely superseded the common hoe drill, especially in the far West. A series of shoes are pivoted to the frame, extend beneath the seed box, and provided with springs for depressing or raising the shoes. The patents to Christman & Munn, No. 497,864, May 23, 1893, and Schopp & Liese, No. 513,060, January 16, 1894, are good examples.

Lister plows and planters are so important in the art that nearly every manufacturer has one of special make. They consist of a double mold-board plow that clears away the earth, followed by a drill tooth that cuts a furrow, and delivers and covers the seed. See as examples: Lindgren, No. 364,829, June 14, 1887, and Waterman, No. 385,738, July 10, 1888.

In planters for corn, cotton, and potatoes it has become desirable to have machines that are sus-

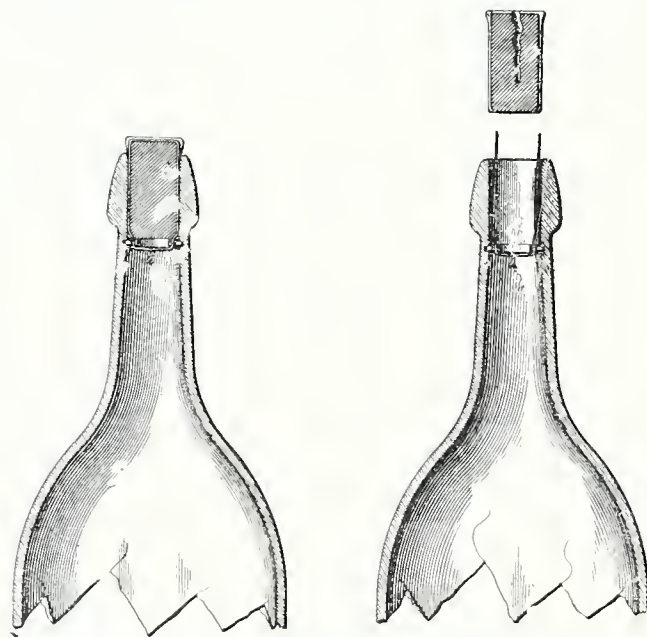
ceptible of conversion from a hand to a check row or drill device. The patents to Lynch, No. 376,534, January 17, 1888 and Scofield, No. 509,453, November 28, 1893, illustrate the combined machine. In these subclasses 2,313 patents have been issued.

Cultivators.—Disks, instead of plows, to disturb soil already broken are also much used. Among the first of these is one shown in the patent to Mallon, No. 206,185, July 23, 1878, a revolving cultivator, and a later one is found in the patent to Lindgren, No. 531,200, December 18, 1894, a riding cultivator, having an arched axle to pass over the rows of growing crops and cultivate on both sides of the row at the same time; adjusting mechanism to regulate the throw of the soil to or from the plants, and adjustable dragbars suspended by a universal joint, and lifting levers. The patent to Jones, No. 542,339, July 9, 1895, shows a cultivator adapted to work three rows at the same time.

Non-Refillable Bottles.

The frequency with which frauds have, in recent years, been perpetrated upon purchasers and reputable manufacturers and bottlers, by putting up an inferior article in bottles originally filled with and bearing the marks of a commodity having a recognized standing, thereby deceiving the purchaser into believing that he is securing the superior article called for by him and injuring the standing and sales of the manufacturer or bottles of the superior article, has created an unusual demand for a bottle that will prevent such frauds.

To supply this demand, has been the object of many bright inventors, and a search in the Patent Office through this class of patents, discloses many interesting patents, most of which, however, are for ideas more ingenious than practicable, and very few of which are for inventions having any practical utility, for cheap liquids, such as beer. Nearly all the inventors have proceeded on the theory that, in order effectually to prevent such frauds, the bottle, when once filled, must be so sealed, or closed by such means, that in order to withdraw its contents it shall be necessary first to



destroy the bottle. This, of course, is effectual, but unfortunately, the inventors of such devices have lost sight of the necessity of cheapness and simplicity of construction, and their devices have been so complicated and expensive as to exceed in cost the price now asked for nearly all commodities, bottle and all, so that their ideas are impractical for use with any but the most expensive articles.

The ideal bottle for preventing frauds, is one in which the sealing or closing means is, First: simple and cheap in construction, so as to adapt it for general use, Second: Does not require the complete destruction of the bottle, but when its original contents are withdrawn, leaves within the bottle a means showing such to be the case, which means, while it cannot be withdrawn without destroying the bottle, does not, when in the bottle prevent the refilling thereof.

Samuel Taylor, of Houston, Texas, has recently patented a means which seems to answer these requirements. His device, as shown in the accompanying illustration, dispenses with the use of valves and all other complicated and expensive parts, and embodies a "keeper" that has a simple spring arrangement which permits the keeper readily to be inserted to place in the neck of the bottle and automatically locks it therein so that it cannot be withdrawn without destroying the bottle. Attached

to this keeper by wires is a common cork, and to attach the cork to the keeper is possible only while both cork and keeper are outside the bottle. To permit the contents of the bottle to be withdrawn it is only necessary to cut said attaching wires, thus detaching the cork from the keeper and allowing the former to be removed. The keeper and the attaching wires are always completely visible and as the wires cannot be attached to the keeper when the latter is in the bottle, it will be obvious that if the bottle is refilled the fact that the cork has been and is detached from the keeper will be disclosed and will afford indisputable evidence that the bottle not filled with the original contents.

Further information regarding this valuable invention can be obtained from the inventor.

Patents as Investments.

Mr. W. Clyde Jones—I wish to supplement Mr. Scheible's paper by analyzing the different classes of inventors. In the first place, there are the inventors of the old school, men who are hovering on the verge of the impossible and are trying to invent a perpetual motion machine, to discover the hidden force of vibrations, or to invent a mechanism for transmitting sight, sound or intelligence. These are the men who are commonly called cranks, but occasionally one is successful in his endeavors and becomes a national hero like Morse, Bell and the man who first sees by electricity.

The second class of inventors are those who take up the oft times ultra-theoretical and impracticable devices of the first class and by the application of common sense and close attention to details improve and perfect the machine or art. The bulk of patents granted are of this class, and they are the most lucrative to the inventors as a class, since very few who are working on the great problems are successful, and even then but few are able to convert their success into currency. But as these men take something existing and merely improve and perfect it, they often fall into a rut and go on for years inventing along a certain line until some one from another field, whose mind is not hampered by the accumulated wisdom and ignorance of the particular industry, suggests something new and introduces it, and then these detail inventors take up this new idea and develop it to its perfection. These chance inventors from other fields constitute the third class, men who, while not wholly conversant with an industry, see where they can apply their own experience to improve a business foreign to their own. Many of the most radical inventions in bicycles, for instance, have been made by bicycle riders who knew little of the manufacture of bicycles but appreciated the deficiencies, and many of the inventions have been made by those who do not even ride. Every industry must at intervals have new blood infused into it by some one who knows little or nothing of the laws of that industry and who is therefore not concerned if he breaks them.

Regarding the protection afforded by the patent, it will be found that in every invention there is an essential feature which if covered secures protection, and it is the duty of the inventor and his attorney to appreciate this essential feature and claim that.

For instance, Howe claimed no complex mechanism for moving the shuttle and needle, but claimed the combination with the shuttle of a needle with the eye at the point. Bell claimed the method of transmitting speech consisting in producing an undulatory current of electricity on the line corresponding to the undulations of the air particles in constituting the sound, and Edison claimed in an incandescent lamp merely the mechanical feature of making the leading-in wires of platinum, but this afforded broad protection because platinum being the only metal having the same coefficient of expansion as glass, was the only metal which when used as a leading-in wire would maintain the vacuum.—*Electricity.*

Prof. O. Schmitt, of Jena, has invented what he calls the electro-capillary light. He finds that when a discharge of an induction coil is sent through a capillary tube of about 0.05 mm. diameter, provided with aluminum or copper electrodes, and filled with air at ordinary pressures, an intense luminosity is obtained—a luminosity which is described as "intrinsically far superior to that of the arc." Wider tubes give less light.

The difficulties in the way thus far are that the light is not continuous, and tubes of proper diameter for the best results deteriorate rapidly.

This light is described in the current number of Wiedemann's Annalen.

Serves Them Right.

Some years ago an advertisement appeared in the papers as follows:

"Wanted—An invention for sawing stone to a taper form: \$5,000 reward offered for the best invention of the kind for this purpose."

In response to this announcement, made, no doubt, by some designing, hungry patent agent, in conspiracy with an outside accomplice, for the purpose of increasing his income, several hundred inventors sent models of stone sawing machines to the Patent Office for patents. Nearly every one of these models represented two saws set to form an acute angle, and as the saws descended cut the stone to a taper form. One agent filed so many applications in the United States Patent Office, all like one another, that the principal examiner of the Patent Office in charge of this class finally became disgusted with such proceedings on the part of this agent, and wrote a letter to each of the later applicants substantially in these words: "Your application for a patent on a machine for sawing stone to a taper form has been examined and rejected on application of A. B., C. D. and E. F., filed through the same agency that has your case in charge." This was a sockdolager to the agent, and an eye-opener to his clients.

Sequel to the stone saw prize: At the termination of the period set for awarding the \$5,000 prize offered for the best stone sawing machine, these expectant inventors carried their models of stone sawing machines to a place designated in Vermont, and, alas! on exposing them to the supposed generous citizen who had advertised for the inventions, were told that none of the plans were as good as one which he had invented himself, and therefore the prize would not be forthcoming. Sad hearted and disappointed, they returned home with an experience which ought to last a lifetime. By this trap inventors were led to expend thousands of dollars for models, traveling expenses, and agency and government fees, with no profit to themselves, simply benefiting an unscrupulous patent agent and his accomplices. Inventors ought to look carefully before they bite at such bait.

Another trap set for patentees is the one that the INVENTIVE AGE, of Washington, D. C., has for many months been warning patentees against. This trap is the patent right selling agent, who sends to every patentee a letter, which letter says: "Your patent has been examined by our scientific board or corps of mechanical experts, and it has been pronounced to be worth \$25,000, or \$50,000, or \$100,000, and we would like to have the agency for selling your patent." Furthermore, offers are made to take out foreign patents on already issued United States patents for one-half the usual fees, etc. It is only necessary to say that patents in many foreign countries for United States patented inventions, which have been published in the United States Patent Office Gazette fully enough to be understood by practical mechanics, are invalid, even if granted by such foreign government.—*New Ideas, Phila.*

For seven years the INVENTIVE AGE has been trying to be the guide and friend of the American Inventor and its columns have been filled with warnings against patent sharks and all kinds of fake institutions connected with the patent business, but in face of these facts the American inventor with an innate tendency to fall into traps of this kind goes thundering on in such a way as to make P. T. Barnum's saying that Americans like to be humbugged is a living and palpitating truth.

A useful discovery is announced in *L. Echo Forestier* by F. Riche, an engineer. It is known that motive power, instead of being produced by steam, can be had directly from the coal transformed into gas. The defects of this gas, however, are its small per cent of richness, its cost, and the scarceness of the coal, from which, in certain localities, it can be extracted, though even with these disadvantages the motive power thus produced is cheaper than that obtained by ordinary means. Means have now been found by M. Riche for transforming the whole of wood into gas, the latter having, he says, a power four times greater than that yielded by bituminous coal, which can be applied to the production of numerous ceramic products, such as glass manufacture, Bessemer hearths, and like industries. Owing also to its richness in carbonic oxide, it can be made use of in the manufacture of various chemicals, such as oxalic acid, and this at a much lower cost than at present.

The January number of the Review of Reviews is one of the most interesting numbers ever issued by the publishers. It is in reality a library of all important current events.

A Metal Eye.

In the course of investigations into the invisible etheric waves of light, Professor Jagadis Chunder Bose, professor of physical science at the Presidency college at Calcutta, recently devised an instrument that is in reality an eye. That is, it is an optical device for making visible some of the wonderful light waves that we have long known must exist, but which human eyes have never been able to see, and in making it Professor Bose followed closely the construction of the human eye. The device is, as he explained it recently before the British Association of Science, practically an enlarged human eye, with enlarged abilities.

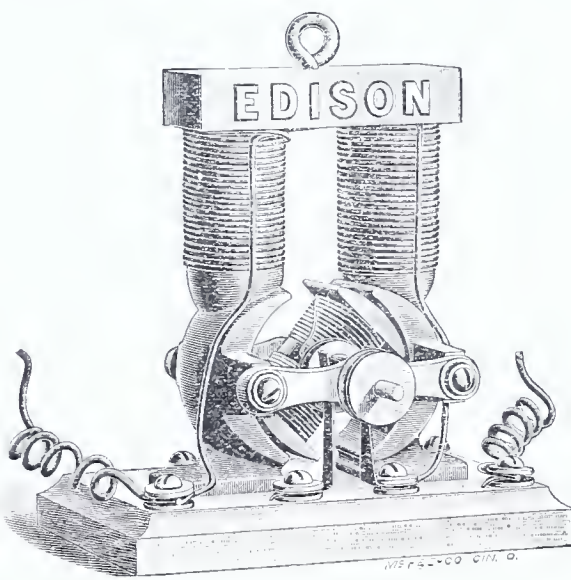
In the construction of his artificial eye these essential parts were necessary: A sensitive surface, known as the retina, on which the image of the external object is focused by the eye lens, a conductive strand, known as the optical nerve, which carries the visual object to the brain. The twitching produced in the brain by this impulse gives rise to the sensation of light.

Despite the fact that it is artificial in every way, it really works on principles similar to the eyes through which we look. In the first place, there is the sensitive layer, and the invisible light falling on this produces an electric impulse. This impulse, carried by a conducting wire, produces a twitching motion in that part of the mechanism just back of the eye that corresponds to the human brain, and the fact of sight is made apparent by the magnified motion of the spot of light which is reflected from the moving part.

A strange fact in connection with this is that this so-called electric eye becomes tired, just as our eyes do, and, as when that fatigue produces an itching sensation in the human eye. The effect in both cases is similar. It seems to produce rest. There is this advantage which the electric eye has over the human. When one specimen becomes tired out and temporarily useless another can be substituted. Thus, given a full opportunity to recover its wanted vigor, it only takes the electric eye a short time to recover full vigor.

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W. R. Lyle.

The Photographic Times of January, 1897, is replete with magnificent photographic views and interesting information to all lovers of photography this is unquestionably the most valuable magazine for all persons who have anything to do with the photographic art.

Incubators.

The art of hatching chickens by artificial means was practiced in Egypt for thousands of years, with considerable success. Machines with this in view were patented in this country prior to 1871 but very rarely with any positive degree of success. The reason of their failure arose from the operators' ignorance of the degree of heat and moisture requisite. The British patent, No. 11,102, February 25, 1846, and the United States patents to Hoffman, No. 4,978, February 20, 1847, and Guerin, No. 3,019, March 30, 1843, are among the earliest types of incubator employed in this country and England. Following these tentative constructions, the most important innovation was made by Rosebrook, No. 271,991, February 6, 1883, who successfully regulated the temperature by a thermostat and electric circuit, and Halsted, No. 267,122, November 14, 1882, who devised an egg-turner and moisture system. Campbell, No. 372,115, October 25, 1887, provided for the independent regulation of water and air temperatures, thereby greatly enhancing the effectiveness of the incubator. In this class 129 patents have been issued.

Current Literature.

Self Culture a magazine of knowledge published by the Werner Company of Chicago, is one of the best edited magazines of the century. Among the interesting articles in the January number may be mentioned one intitled, Congress and the Legislative Power Explained, American Railroads and their Economies, Halifax the Land of Evangeline and How Shakespear's Senses were Trained.

Elementary Meteorology. For High Schools and Colleges. By Frank Waldo, Ph. D., late Junior Professor in the United States Signal Service. Cloth, 12mo, 373 pages. Illustrated. Price, \$1.50. American Book Company, New York, Cincinnati and Chicago.

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The book has been prepared to meet the recognized want of a modern text-book of meteorology, sufficiently elementary for the use of pupils in high schools and other college preparatory schools.

The illustrations are numerous and significant and add greatly to the value and usefulness of the book. They include cuts of the instruments used in meteorological observations, pictures of the various forms of atmospheric phenomena, numerous colored maps and graphic charts of different phases and conditions of the weather.

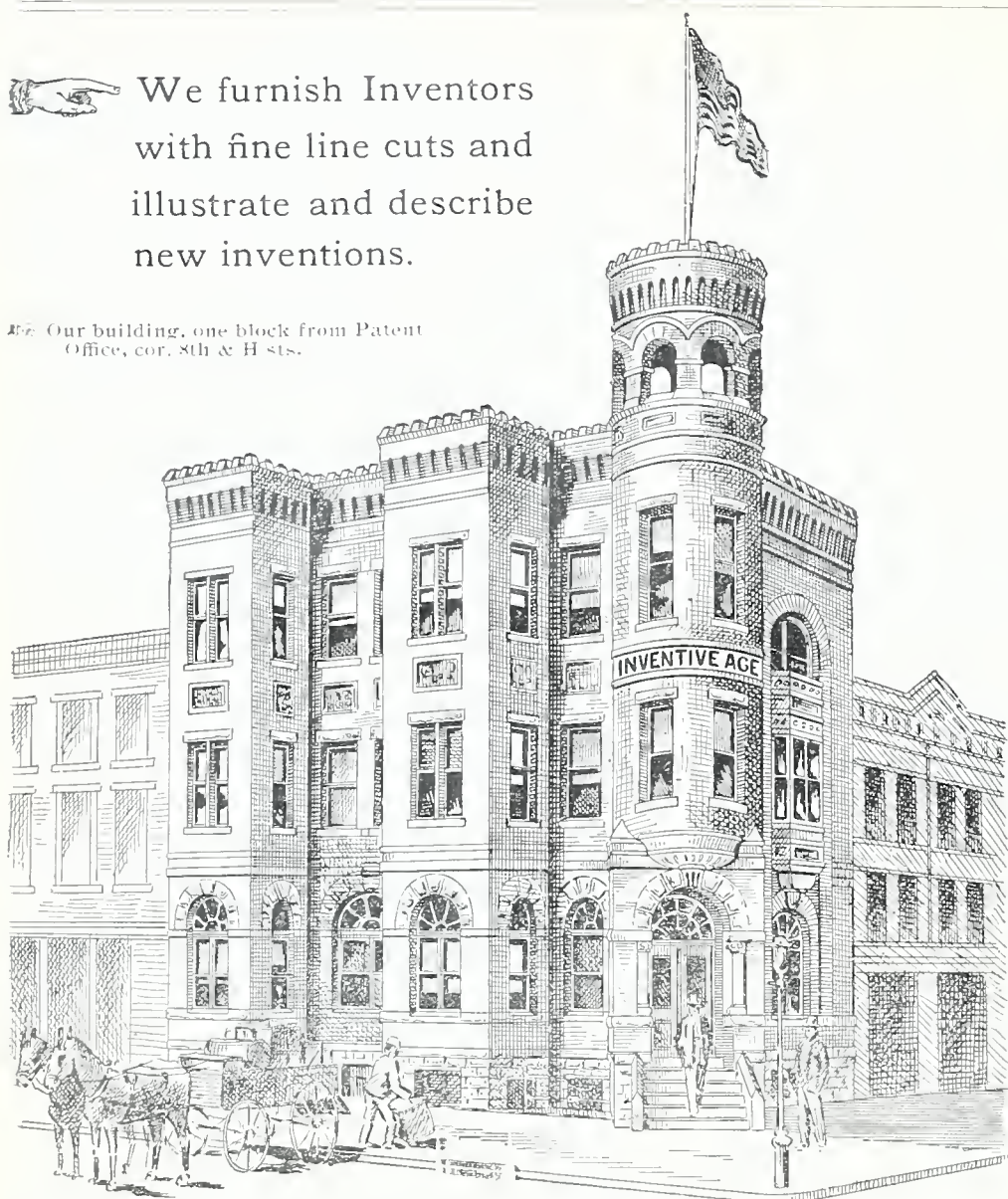
In the Colorado desert they have rain storms during which not a single drop of water touches the earth. The rain can be seen falling from the clouds high above the desert, but when the water reaches the strata of hot, dry air beneath the clouds it is entirely absorbed before falling half the distance to the ground. It is a singular sight to witness a heavy down pour of rain, not a drop of which touches the ground. These strange rainstorms occur in regions where the shade temperature often ranges as high as 128 degrees F.

A. C. Spencer, of Buffalo, is going to utilize the power of Niagara's current by means of a rotary screw and endless chain. He claims that with an expenditure of \$250 he can build an apparatus that will develop 2000 horse power. He feels that 500,000 horse power can be developed between Bird Island and the International bridge without interfering in any way with navigation. Mr. Spencer made a test of his machine a few days ago, and he found the current was so strong that it carried his motor down stream, but he announces that he will try it again.

A TWELVE year old Italian boy was suffering from pericarditis and the inventor came to his rescue. Professor Pierce conceived the idea of constructing an instrument that enabled him to draw off the purulent serous matter in the sac. He then washed the heart and its scrofulous covering with the solution of sodium biborate, closed up the gap made necessary for the operation, and the boy's pumping machine is now in working order and quite as good as new. Invention and surgery may in time bring the length of human life up to that of old Methuselah.

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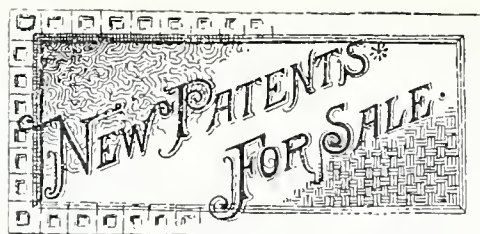
Mem. Amer. Inst. Elec. Engineers, Amer. Soc'y Mech. Engineers, author inventing as a Science and an Art. Assisted by LOUIS M. PIGNOLET, N. D. C. HODGES and LUDWIG GUTMANN, E. E. With a Chapter on Generalizations, Arguments, Theories, Kindred Radiations and Phenomena, by Professor WM. A. ANTHONY, formerly of Cornell University, Past Pres. American Inst. Electrical Engineers.

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On receipt of a copy of this work Dr. W. C. Roentgen wrote as follows: "I express to you my sincere thanks for kindly sending me your book "X Rays," which I have read with great interest."

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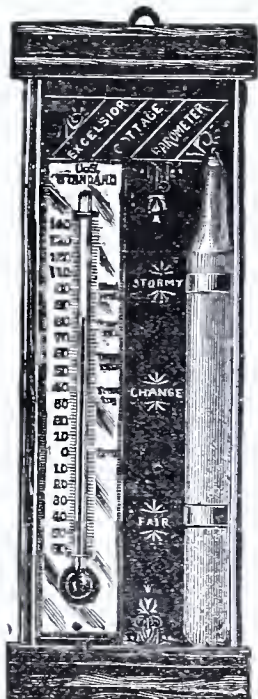
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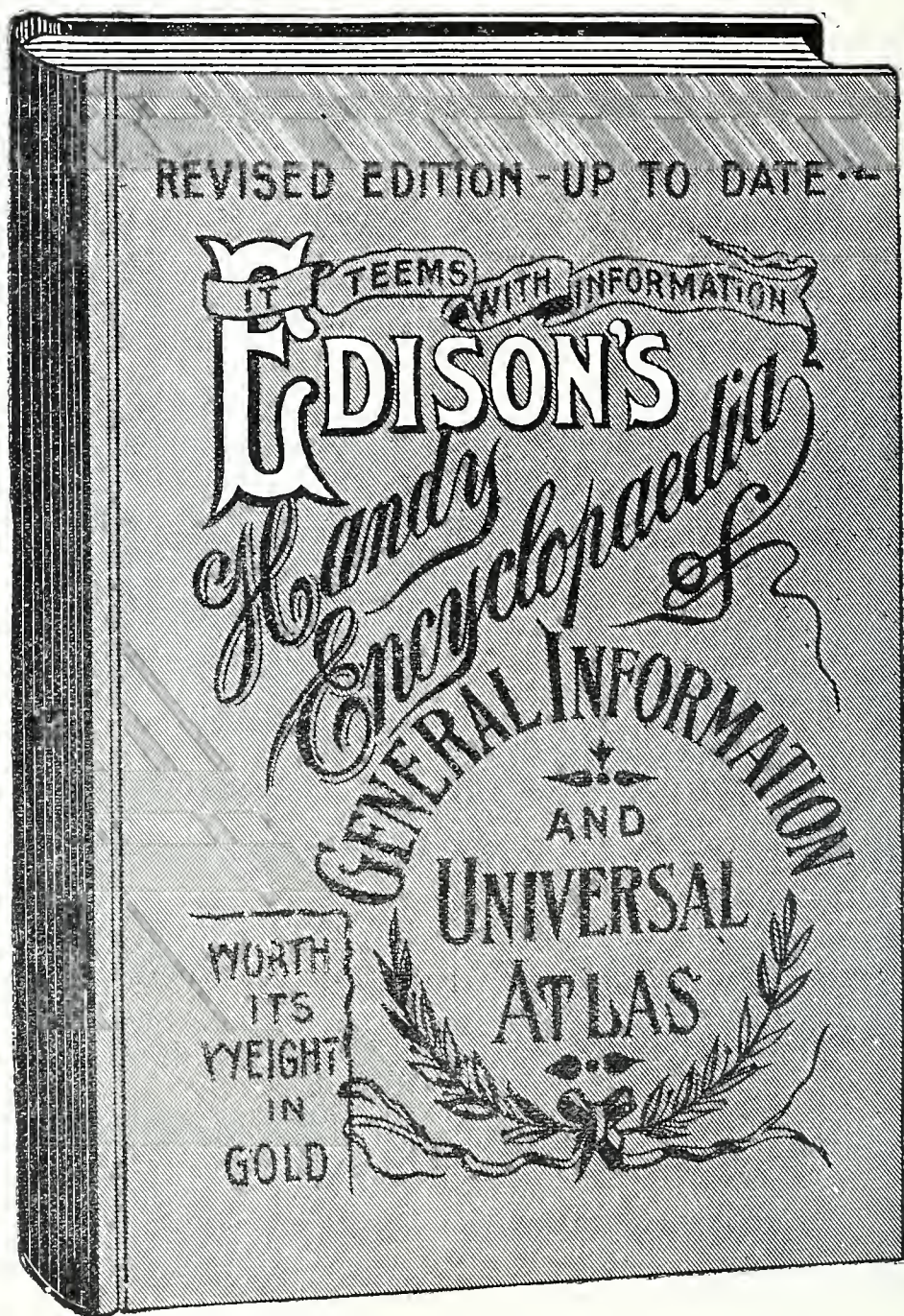
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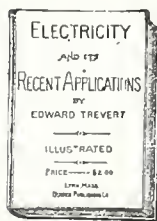
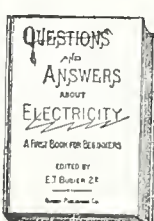
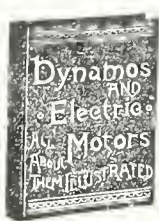
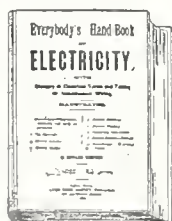
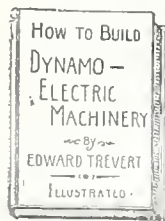
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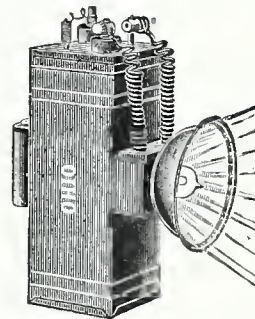
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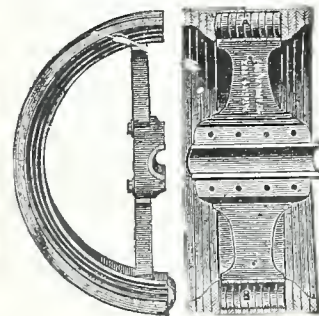
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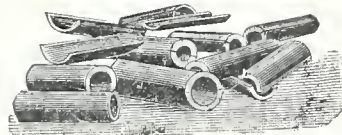
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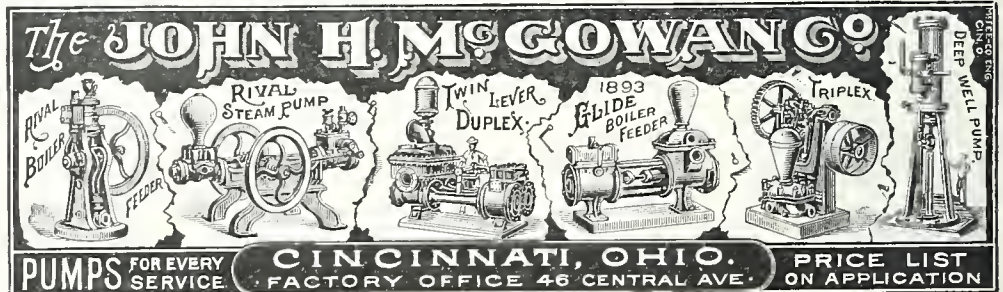
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abundant means, intended to construct a group of specimens of Grecian temples and palaces which he had visited in his travels. He copied mostly from Athenian structures. He filled these buildings with works of art, many of which have been unearthed and are a delight and wonder to artists of modern times. Here was found the Venus de Medici, the Mosaic of "Pliny's doves" the Faun of the Capitol and artificial gardens and streams were constructed around these magnificent edifices.



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built of travertine and was erected in the first century of our era. There is a smaller temple which resembles the Temple of Fortuna, and part of the forum is still standing, but the great attraction for antiquarians and tourists is the renowned Hadrian's Villa. This collection of buildings is a study of ancient architecture. Emperor Hadrian, who had

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Continued on page 19.

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ON our front page we give an illustration of the famous falls of Tivoli. The fact is any kind of waterfall now a days, has the especial faculty of attracting the industrial world. Anything that will by its own momentum propel a turbine wheel with sufficient force to whirl a dynamo strongly enough to generate electricity, is just now an object of great interest. It is a well known fact that electricity can be generated cheaper by the natural power of water than in any other way, and for this reason every waterfall throughout the civilized world, that has sufficient flow of living water the year round to propel a dynamo, is being rapidly absorbed by syndicates for the purposes of future development. If any of our readers are in possession of waterfalls it would be well for them to remember that they have a marketable value of no small consequence.

A NEW burner of petroleum has been invented in Austria by R. Ditmars. The new burner by the application of an incandescent burner, is said to produce the same beautiful effect as incandescent gas, and to be much more economical. The exterior burners differs but slightly from the ordinary petroleum burner. It is its interior mechanism which produces the Bunsen light, a mellow, clear, white light of exquisite softness. This effect is obtained from the formation of an extraordinarily intense heat, by which the incandescent body is brought to incandescence, promoting combustion without heating the petroleum balloon or burner, and completely exhausting the petroleum, not leaving the most remote trace of unpleasant odor, as it most frequently the case where petroleum is used as light. This is certainly an important invention, if it should result in doing away with the unpleasant fumes that arise from petroleum lights when turned low. No invention that we know of has ever succeeded in accomplishing this long-sought-for result.

FOR two thousand years the infidel has mooted the idea of Hell, and scouted the idea of eternal fires that are said to be flaming in that last resort of crime and sin. They have denied the existence of eternal fire on scientific grounds. They claim that eternal fires no more exist than perpetual motion. Now an inventor comes into the arena of

public notice with a new process by which he claims to have invented an unquenchable fire. It is said that this new substance is non-explosive, of a pasty nature, easily ignited, and cannot be extinguished by any known way. The inventor claims that this substance can be created at so small an expense that it will readily take the place of coal for heating purposes, and that it is destined to take the place of all other flame and heat producers. One of the remarkable qualities of this new discovery is the fact that this fire is both flame and fuel itself. All that is necessary is to smear the bottom of a frying pan, hang your veal cutlet over it, suspended on a wire, ignite the paste with a parlor match, and your cutlets will soon be done to the King's taste. A half a pound of this paste will last for cooking purposes several days, and the cost is only nominal. If there is any truth whatever in the report of Mr. Floyd's discovery the infidel will have to take a back seat and give the devil a chance.

THE man who buys a one year old Jersey heifer and expects from that source cream for coffee the next morning is like the growler who has been growling ever since the election of McKinley because the era of prosperity has not already begun. On the 4th day of next March McKinley will be inaugurated and eleven days thereafter an extra session of Congress will be called and in thirty days thereafter a tariff bill will be placed upon the National Statute Book which will bring revenue enough to the Treasury to defray the expenses of carrying on the Government, and will also afford a moderate incidental protection to a large number of our industries which still need some defense against the pauper labor wages of Europe. When this has been done, the era of prosperity will begin, and the INVENTIVE AGE predicts that when this prosperity begins it will be gradual, solid, and good for a great number of years. The United States is naturally the richest nation on earth. Our trouble is not on account of money matters; our trouble is not on account of free trade or protection, it is largely because of the want of Statesmanship among our politicians. With wise statesmanship would come naturally a wise arrangement of our monetary and tariff systems. We need more patriotism and less self hunting in the United States. The will of the people is no longer the law of politics, but the law of politics seems to be the will of the professional politicians. Give us more patriots and less politicians and this country will be strong, prosperous and glorious.

If the United States should come in deadly contact with Spain in the final adjustment of the Cuban question it would certainly be a Colossus pitted against a Lilliputian. The total population of Spain is only nineteen millions, while that of the United States is estimated at over seventy millions. One third of the entire population of Spain is composed of absolutely unlettered people, ignorant, superstitious, but patriotic. One half of the population have no profession whatever. Five million of them are engaged in agricultural pursuits, ninety-seven thousand are office-holders, and sixty-four thousand are upon the retired military and civil lists. There are forty-four thousand school teachers, of whom twenty thousand are females. There are thirty thousand doctors, forty-three thousand of the clergy, and twenty-nine thousand nuns; and out of the total population can be counted about one hundred thousand mendicants. There is one feature of Spanish life that is quite unique, and that is the intense love of bull fighting. During last year there were four hundred and seventy-eight bull fights in Spain, in which one thousand two hundred and eighteen bulls, valued at three hundred thousand dollars, and five thousand seven hundred and thirty horses, valued at two hundred thousand dollars were killed. There were twenty-three famous matadores engaged in these bull fights, and they were paid for their services two hundred and twenty one

thousand five hundred dollars. The most renowned of the matadores received about eight hundred and fifty dollars for each battle. At the present day Guerrita is the most famous of all the matadores. He appeared in sixty-eight fights, killed one hundred and seventy-four bulls, and received fifty-one thousand dollars for his bloody work, which is one thousand dollars more than the salary of the President of the United States. It has been reported that the interest in bull fighting is diminishing in Spain. It is evident from these figures that such is not the case. If Spain should ever match her steel with the Great Republic of the west, in trying to settle the principles of human rights, she will find that bull fighting and Yankee fighting are very different kinds of pastimes.

THE recent action of the Commissioner of Patents in cutting down the Patent Office rules from two hundred and twenty-nine to eighty-seven, for the purpose of making them clearer and more concise has excited much unfavorable comment from leading attorneys. While performing the work, the Commissioner, through deference to the Patent-Bar Association of this city, appointed a committee of several experienced patent lawyers to go over the new rules and submit such suggestions and amendments as they deemed proper. After the Committee had spent much of its valuable time in daily meetings and careful analysis of all the points involved, a report was submitted to the Commissioner, who completely ignored it and issued the rules as they were prepared by him. This is not the first time the Commissioner has ignored the prayers and petitions of the profession practicing before the Patent Office. When he took the photo-lithographic contract away from Norris Peters & Co. and gave it to a gang of incompetent politicians backed up by the Assistant-Secretary of State both financially and influentially, he was flooded with petitions and letters from eminent members of the Patent Law profession from all parts of the United States urging him to place the work in competent hands. His predecessors had always recognized such appeals, but he ignored them. In the present change of the Office rules we can see no cause for grave apprehensions, because a new Commissioner will soon be installed, and the old rules restored or the new ones amended to eliminate flaws. This can be as easily done as the costly Count Misty-witz' concessions were promptly revoked by the Emperor of China. We ought to give the present Commissioner the credit which he deserves for reducing the cost of copies of patents from twenty-five to five cents each, and also for a more commodious Attorneys' Room, the excellent annual reports he has made to Congress and other sundry matters.

Evidences of Wealth Throughout the Industrial World.

In 1870 the property of the United States was valued by the census authorities at \$30,000,000,000 in currency, or \$24,000,000,000 in gold. In 1890 that property had so increased in value that it was worth \$65,000,000,000 in gold. In twenty years the people of this land added to their tangible possessions property to the value of \$41,000,000,000 in gold. But more important are the facts showing the distribution of these vast accumulations of recently-acquired riches. The census of 1850 estimated the number of real estate owners in the United States in that year as 1,500,000. Therefore, at that time, according to the census, 6.47 per cent of the population and 35.95 per cent of the families in the country were possessed of real estate, either free or encumbered with debt. The census of 1890 reports 6,066,417 families living in houses or upon farms owned by themselves. Of this number 4,369,527 owned their farms and homes, free from all mortgage encumbrance. In addition, there were many other owners of real estate, besides these owners of houses and farms used as homes. The owners of homes free from debt made up 6.98 per cent of our population and 34.93 per cent of our families in 1890. Taking the individual as the unit, the improvement is equal to 50 per cent. The facts cited show that, whatever may be our present transient indications of prosperity, we have in them from 33 to 50 per cent more ground for expecting such prosperity than had our fathers in 1850.

Tivoli's Waterfall Harnessed.

Continued from first page.

This was done to prevent the recurrence of inundations like that of 1826 which destroyed a part of Tivoli. The fall is 330 feet in height and it is very beautiful.

Modern science has utilized this vast flow of water by causing it to furnish the power by which the imperial city of Rome is now lighted.

In this plant there are nine Pelton wheels and the current is generated by alternators, six in number, giving a current of 500 volts and 45 amperes. The transmission over the eighteen miles of distance to the city, is effected by standard copper cables, supported with double shed oil insulators, designed by an Italian electrician. There is a loss of about twenty per cent in the transit but the remainder has been found ample to supply the present needs of Rome.

In the illustration we present to our readers a view of the falls of Tivoli which are used for the above purpose.

Modern Rome is not dead nor moribund and what remains of its famous ruins are difficult to discover—a guide is necessary to visit the most interesting places. The Coliseum, the Capitoline, the Forum and the Arch of Constantine are grouped together but aside from this collection of ruins, stranger, would not be impressed by the antiquity of the city, for the Rome of to day is a busy metropolis of a quarter of a million people solid blocks of business houses tower above its streets and prosperous looking dwellings of modern architecture line its avenues. The historic Tiber has been, under the present King Humbert, walled up with mighty buttresses of masonry throughout its entire course through the city, and though this was done mainly to furnish work to the starving poor of Rome, yet the spirit of progress and improvement is abroad in the land and the arc light shining through streets where once the chariots rumbled in the gloom and fitful glare of torches is linking the present to the past with that mysterious invisible chain of electricity now such a potent factor in our civilization.

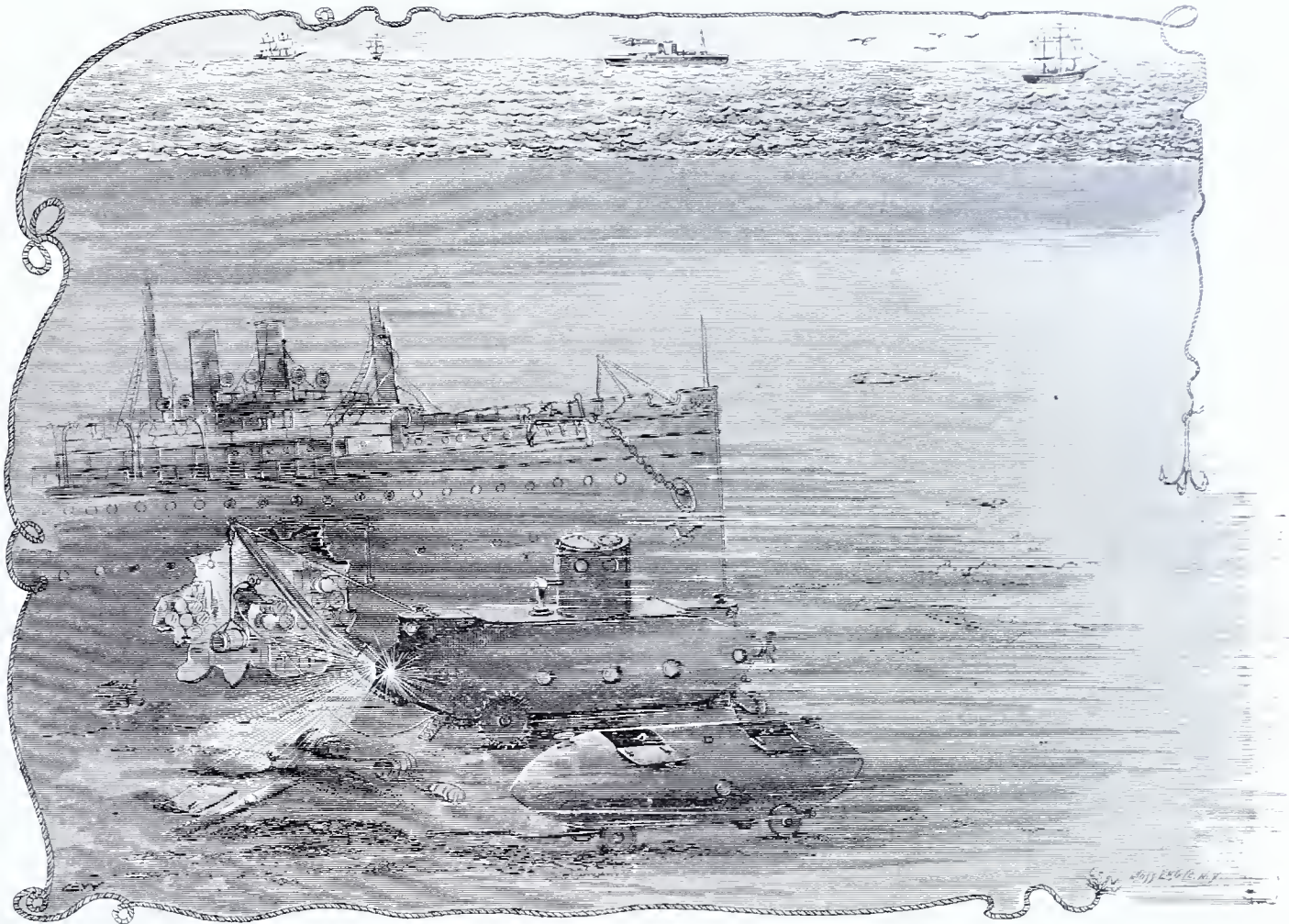
A New Submarine Boat.

A contract has been let to the Columbia Iron Works, Baltimore, for a vessel which is destined to revolutionize the present method of recovering cargoes of sunken ships and of wrecking generally, if what is claimed by the inventor is verified by its

large enough to demonstrate the working of its inventor's plans, as it will accommodate several men, and, it is claimed, can be submerged to a distance of at least 150 feet below the surface of the water if desired.

Compressed air and electricity enter largely into the operation of this boat, which has been called a "submarine locomotive," as it is planned to travel

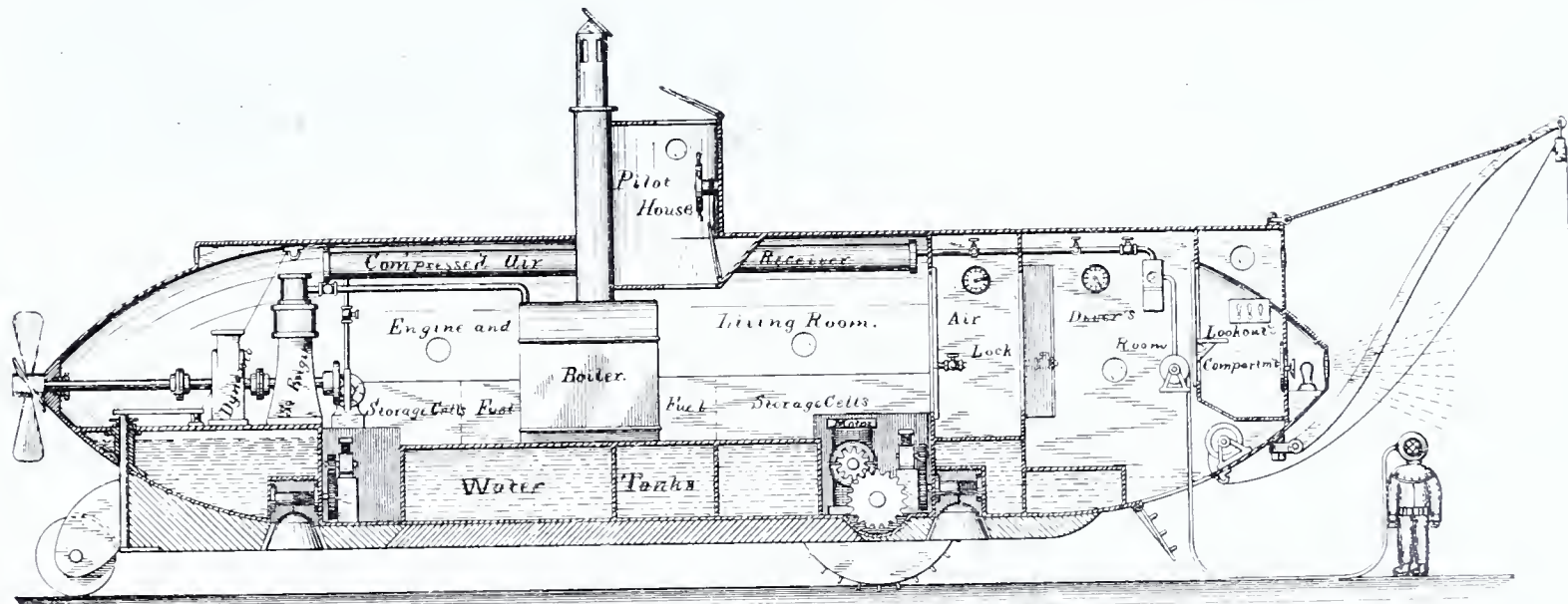
In the engine-room is also located an air compressor and receivers for renewing the air used by the crew and also to furnish the air necessary to supply the divers when operating outside of the vessel. As a man working should have about thirty cubic feet of free air per hour, at first sight it would appear that it would require a large reservoir capacity to carry sufficient air to last the crew for the



NEW SUBMARINE BOAT.

along the bottom of the sea or lake after it has been sunk. It is, as will be noted in the accompanying illustration, divided into four compartments, called respectively, the engine and living room, the driver's room, with an intermediate air-lock compartment, and a forward lookout and operating compartment. In the engine-room is placed a steam boiler and engine, which is used for propulsion when floating on the surface in the ordinary manner by means of

forty-eight hours, but when it is taken into consideration that the air is compressed into tanks to about one-seventieth of its bulk when in its free state, it is seen that very small reservoirs are required. The carbonic-acid gas which is formed, being the heaviest, settles to the bottom of the boat, where it is pumped out, or it may be again vitalized by passing it through certain chemicals. Various steam and electric pumps for handling the water



NEW SUBMARINE BOAT.

work. The craft is what is known as the Lake submarine boat, and is being built for the Lake Submarine Co., of Baltimore. Its dimensions are as follows: Length, 36 feet; diameter, 9 feet. It is to be constructed of three-eighth-inch steel plates, and will have a 2,000 candle-power electric light and be operated by a thirty horse-power engine for compressing air, furnishing motive power and operating the electric plant. While this boat is only intended to be of an experimental character, it will be

the screw propeller. A dynamo is also provided, which may be connected to the steam engine for charging the storage-battery cells located in lockers on each side of the boat. This dynamo may also be used as a motor, and can be disconnected from the engine and used for running the propeller when submerged, if desired, although the method preferred is that of direct propulsion through the medium of the forward motor geared direct to the axle of the forward wheels.

ballast are also located in this compartment.

Forward of the living-room and connected therewith through air-tight doors and the air-lock compartment is the diver's room. This has a door opening outward situated in the bottom, through which the divers may readily pass in and out without assistance from any one. This bottom door can never be opened until there is a pressure of air in the diver's room equal to the pressure of water on the exterior, corresponding to the depth of water the

vessel may be in. When these pressures are equal, which is indicated by the hands of a pressure gauge in the compartment, the door may be opened and no water will come into the interior. This pressure is maintained at all times while the divers are operating on the exterior of the vessel, yet by means of the air-lock compartment they can pass from the diver's compartment to the living-room as frequently as required. In the diver's room is also placed a telephone, a hose reel, hoisting engine, and all the various paraphernalia required in wrecking operation. In fact, it is a complete workshop which the diver always has at hand, without having to be hauled to the surface every time he wants a hammer, saw, etc.

Forward of the diver's room is the lookout compartment, in which the atmosphere is normal. This is the pilot-house when traveling on the bottom. In it the operator also controls the hoisting machine and derrick for transferring the cargo from the sunken ship, etc. He also has control of the movements of the boat and supervises the work of the divers.

It is calculated that vessels of this class can be built to withstand the pressure encountered at a depth of 300 feet below the surface, and remain several days on the bottom, if necessary. It is not thought, however, that wrecking will be carried on at this depth, except in a few instances.

The advantages claimed for the Lake boat are many. They are:

"It is capable of being submerged to any desired depth and again raised to the surface, when submerged, or when it is capable of being propelled when on the surface, when submerged, or when on the bottom, as required. Many of the operations in raising vessels, removing cargoes, etc., can be performed without going outside of the vessel.

"The vessel is capable of searching the bottom by electric light in locating wrecks. The divers are always operating under the eyes and within hearing of others, and in case of accidents of any kind, can immediately receive assistance. Work from it can be carried on day and night and in stormy weather. It can be used in laying foundations for piers, bridges, docks, light-houses, breakwaters, locks for canals, etc., all the operations of mining and handling of stone being accomplished by power. It will also be of use in removing obstructions, such as rocks, shingle, etc., from entrances to harbors, all the drilling operations being accomplished by power, the workmen remaining in atmosphere at normal pressure while on the bottom. It can also be used in recovering victims of shipwreck, whose bodies are, as a rule, never recovered by divers."

A small model has already been tested at Atlantic Highlands, N. J., where three men submerged the boat and worked it along the bottom, as well as leaving it under water and picking up articles which had been thrown to the bottom by spectators of the test.

We are indebted to the Manufacturers' Record for this article and illustrations.

Disreputable Patent Competitions.

We have recently received a copy of a paper issued by a firm of Washington patent attorneys claiming that a million copies of their journal are regularly printed and who offer monthly medals and prizes for especial ability in invention, to inventors taking out patents through their agency. This is one of the many "catch-penny" devices bringing discredit upon the patent system of this country. In the heat of securing prize money, young men and mechanics are induced to take out patents upon unsaleable inventions, squandering money and time to the ultimate benefit of no one except the patent attorneys. Perhaps for sale abroad such a medal may give an undue importance to a trivial invention, but we cannot see any way in which such a system can be of advantage in legitimate business. No one who has ever patented an invention has failed to receive from one or more companies very flattering letters concerning the value of his invention and its patentability abroad with the offer of a medal or a diploma for a small fee, though the fee is always much greater than the value of the medal received and there is no intent on the part of the grantor of the medal beyond the deception of the unfortunate patentee who may be allured by their flattery. There are in France and in this country respectable patent competitions whose medals attest the excellence of inventions, but these competitions are not administered for the purpose of inducing applications for patents through particular firms, but are offered by such institutions as the Franklin Institute and the French Institute for the encouragement of national industry. These legitimate prizes are not fictitiously offered and their awards have real value while such schemes as those presented by the firm in question can only have the effect of increasing the number of useless patents and of bringing discredit on the whole system of issuing patents.—*Journal of Electricity*.

Electric Lights in Tasmania.

Electricity is doing its efficient and useful work all the world over. Away off in the British Colony of Tasmania. (formerly Van Dieman's Land) electricity has begun in a vigorous manner to aid in developing its industrial resources and in that land water power is being used as else where throughout the globe to generate that which is destined to become the great motor power of the world.

The *Electrical Review* with its usual enterprise publishes a very interesting article on the system of electric lighting which illuminates the city of Launceston, one of the principal parts of Tasmania and we give a few of the points of interest.

Ever since Launceston was first settled, the residents recognized that great power was available from the South Esk River, which rushes in a series of cataracts for miles above the gorge, where it joins its waters with those of the North Esk, to

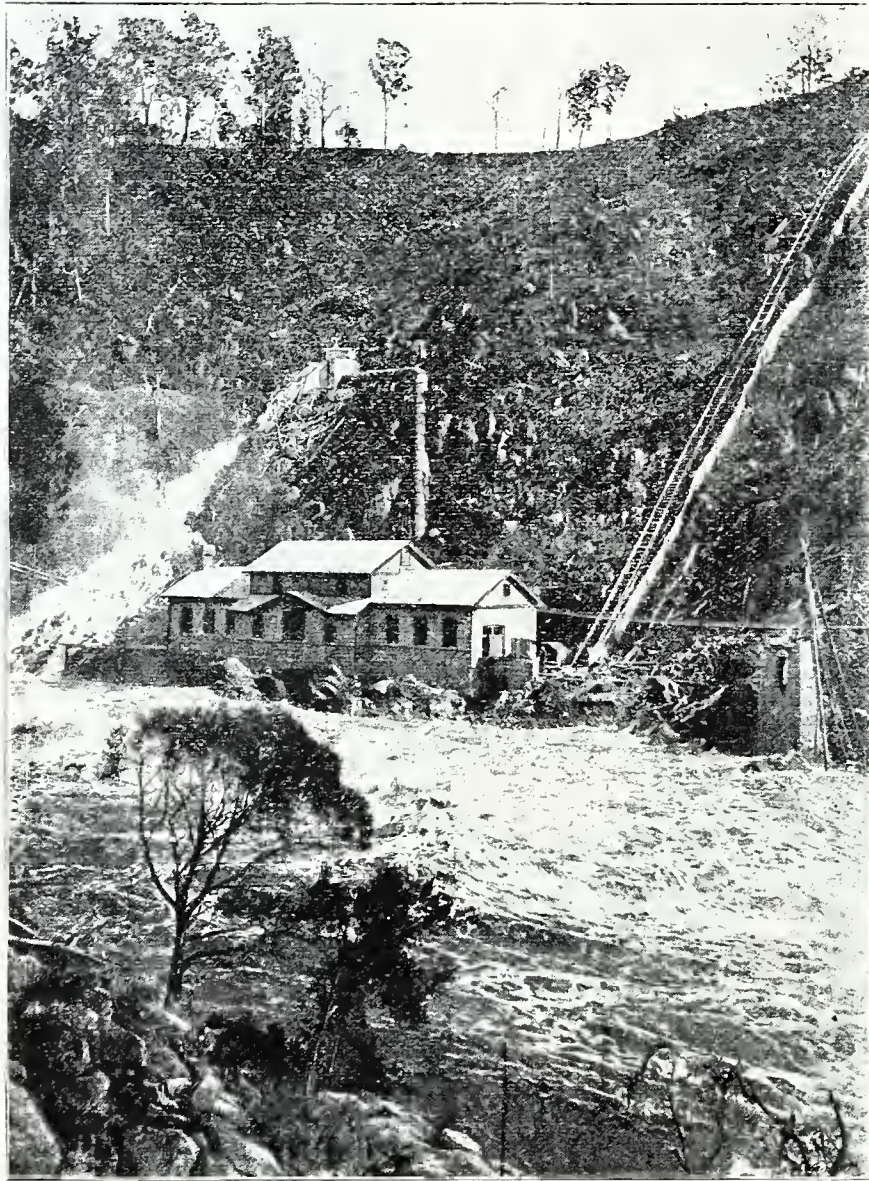
The grade of the tunnel is one in 110, calculated to give a velocity of about 10 feet per second, and therefore a discharge of about 11,780 cubic feet per minute; but as by Parliamentary restrictions only two-thirds of the water flowing in the river is to be made use of, that quantity, equal to 10,000 cubic feet per minute, is all that can be depended on during dry Summer weather.

The resulting horse-power, taking 10,000 cubic feet per minute as a basis, 1,562, at 75 per cent efficiency of turbine, and costs, therefore, £8 10s. per horse-power, a rate which compares very favorably with similar work in any part of the world.

Bee Culture.

Bee culture is becoming a widely extended and profitable business in this country and the Patent Office is kept busy issuing patents of this class. Up to the present 1,001 patents have been issued.

The first movable comb frame for beehives was patented to Langstroth, No. 9,300, October 5, 1852.



Electric Lighting in Tasmania.—The River in Flood.

form the River Tamar. Driving machinery for flour-mill purposes was the only application of the enormous force offering itself until comparatively late years, when enterprising citizens, hearing of what was being done in other countries, began to talk of using the water power for the generation of electricity.

Messrs. Siemens Brothers, the well known London electrical firm, have recently completed an interesting electrical-water-power installation, furnishing current to Launceston. The site fixed for the generating station is three miles from the center of Launceston, but there is no road to the place. This building material was prepared at one side of the river and slung across on a wire safe tramway: The machinery, however, had to be taken round a distance of seven miles through the bush, but that only brought it to the top of a steep hill, about 500 feet in height down which the whole of the plant had to be lowered.

Mr. David the city surveyor, decided to tap the river at a certain point, already determined, by driving through a bend to a spot about ninety-chains above the first basin. The cost of this scheme was estimated at about \$65,000. The drive was put through in 16 months, the men working from both ends, and the engineer had the satisfaction of finding that his levels had been less than an inch apart. The actual cost of the tunnel was ten thousand dollars less than the estimate.

and improvements thereon, disclosing simple and effective means for holding removable comb frames in the hive, were patented to Heddon, No. 327,268, September 29, 1885; to Shuck, No. 329,341, October 27, 1885, and to Danzenbake, No. 547,164 October 1, 1895.

The first artificial comb foundation was made in Germany about 1842. An effective improvement thereon is the employment of a wire support embedded in the foundation, and patented to Hetherington, No. 208,595, October 1, 1878; reissued November 11, 1879, No. 8,962. An artificial honeycomb was made prior to 1853, and on January 29, 1879, No. 397,046, to Aspinwall, was patented one of wood, from which the honey may be separated in a centrifugal machine, and on August 30, 1892, No. 481,578, to Mason and Moskovitz, was patented an improved process of making a honeycomb from wax.

The Association of American Inventors and Manufacturers are becoming a strong and powerful organization and every inventor in the country as well as every manufacturer ought to become a member of it. With such men as Richards, Gatling, Stone, Maynard, Serrell, Bushnell, Edison and Westinghouse interested in its welfare it will become a great power for good.

The admission to the Paris exposition in 1900 will be only 19.3 cents or one franc.

TRANSPORTATION.

Some Facts of Unusual Interest.

We give below some very interesting figures concerning transportation patents which may prove of value to those of our readers who are working upon patents in this line.

Pneumatic tires.—In this subclass 366 patents have been granted. The invention of pneumatic tires was revived in the year 1889 and brought into use in connection with bicycles, and since that time in connection with sulkies and other light vehicles. March 12, 1889, 9 patents were granted to Thomas for pneumatic tires, said patents being numbered No. 399,354 to No. 399,362, inclusive. Patents to Dunlop, September 9, 1890, No. 435,995, and June 2, 1891, No. 453,550, embody forms of pneumatic tires, and said tires have been extensively manufactured and used. The following are regarded as some of the more important patents in this line: Patent of Gray, May 26, 1891, No. 452,876, for a self-healing tire, which is defined as an air-cushioned tire with a lining of viscous or plastic rubber, which provides for the closing up of holes made in the air cells of the tire. Patent of Jefferey, June 16, 1891, No. 454,115, which covers an outer shoe or cover provided with hooked edges to engage the rim of the wheel. Patent of Bartlett, March, 24, 1891, No. 448,793, covers what is known to the trade as the clincher tire. The shoe is held to the rim by the inwardly inclined flanges thereof. Patent of Schrader, January 5, 1882, Nos. 466,577, covers a shoe held to the rim by an adjustable clamping bend. Patent to Garford, January 19, 1892, No. 467,164, covers a tire with multiple air cells, so that in case one of said cells becomes punctured the others may be further inflated so as to supply the loss of air caused by the deflation of the punctured cell. Patent of Palmer, June 7, 1892, No. 476,680, a self-healing tire in which the tread portion of the rubber is placed under compression, so that any puncture therein will tend to close up rather than to gape open. Patent of Brown & Stillman, December 20, 1892, No. 488,494, covers a tire shoe or cover having nonstretching edges, which are held in the concaved rim by the inflation of the inner tube. Patent of Palmer, January 10, 1893, No. 489,714, covers a tire made from a fabric in which there are separate parallel threads, each embedded in rubber. Patent to Huss, April 25, 1893, No. 495,975, covers a tire having its tread portion reinforced by a spiral winding of thread or threads. Patent of Tillinghast, No. 497,971, May 23, 1893, covers a single tube tire in which the ends are united and vulcanized together so as to form a homogeneous endless tube. Patent of Morgan & Wright, April 25, 1893, No. 496,321, covers a mandrel for forming an endless tubular sheath. Patent of Moomy, January 30, 1894, No. 513,617, covers a method of securing the shoe to the rim by a winding of cord.

Patent was granted to Sterling Elliott, March 21, 1893, No. 494,113, for a trotting sulky provided with low pneumatic wheels. The performance with this vehicle was quite remarkable, as having lowered the record for trotting horses by some five seconds.

Motor vehicles.—In this subclass 54 patents have been issued. A line of invention in which much interest has been taken by the general public of late is the class of motor vehicles or automobile wagons. This is not strictly a new art, but rather the revival and carrying forward of old ideas, and the adaptation of modern devices, such as electric motors and gasoline engines, to vehicles for the purpose of self-propulsion. The steam engine, while adapted for traction engines or vehicles intended to draw other vehicles with heavy loads like thrashers, sawmills, and freight wagons, is not suitable for light passenger vehicles. The Benz motor was patented in the form adapted for use on a vehicle of this kind July 31, 1888, No. 376,798. The patent of Daimler, January 17, 1888, No. 375,638, shows a motor for this purpose. Duryea, in No. 540,648, June 11, 1895, exhibits a device for this purpose.

Traction engines.—Patent of Frick, May 23, 1882, No. 258,401, shows the use of a spring link between the power and the drive or traction wheel to prevent too sudden a start and permit a yielding motion. Fairchild, in patent of August 3, 1880, No. 230,762, shows a change of speed gear. Hephinstine, in patent of June 7, 1887, No. 364,411, shows a steering device by which the power of the engine can be used to steer it. Patent of Heggem, April 2, 1889, No. 400,846, shows a convenient application of a brake.

Bicycles.—In this class 2,621 patents have been issued. The patent to Hood, No. 537,462, April 16, 1895, shows a handle bar which can be adjusted to any height. The patent to Metz, No. 546,071, Sept-

ember 10, 1895, covers a form of pedal. The patent of Copeland, No. 529,110, November 13, 1894, covers a crank-shaft fastening designed to dispense with the keys which had heretofore been used for connecting the cranks with the crank shaft. The patent to Shire, No. 216,231, June 3, 1879, shows the first hammock saddle, a form which was exclusively used for many years. The patent to Sawyer, No. 222,537, December 9, 1879, shows what is probably the earliest use of a changeable speed gearing in a velocipede. A great variety of these speed gearings are now being invented, with a view to adapting them to the present form of machine. The patent to Pressey, No. 233,640, October 26, 1880, shows the original Star machine. The patent to Latta, No. 360,101, March 29, 1887, shows the first drop-frame machine for the use of women. The patent to Smith, No. 403,153, May 14, 1889, shows the first convertible machine, which by the removal of the upper bar of the frame can be adapted to the use of women. The patent to Lawson, No. 345,851, July 20, 1886, contains claims to the modern form of rear-driven safety machine.

Railway brakes.—In this class 3,061 patents have been granted. In an automatic air-brake system the essential features are an air pump, a main reservoir, and engineer's valve, all on the locomotive; an auxiliary reservoir; a triple valve and a brake cylinder upon each car; a train pipe extending from the engineer's valve throughout the length of the train, and adapted, through the means of the triple valve, to be thrown into communication with the auxiliary reservoir or brake cylinder, the triple valve being controlled by the engineer's valve through the variation of pressure of the air in the train pipe. See patent to Westinghouse, No. 168,359, October 5, 1875, for an illustration of this. Patent to Westinghouse, No. 360,070, March 29, 1887, exhibits the triple-valve feature.

Electric brakes.—In this subclass 141 patents have been granted. Electric brakes for Electric street railways in which the Electric motor is by a movement of the controller instantly transformed into a generator, which may itself act as a brake, or the generated current may be utilized to apply a brake, are shown in patents to Potter, No. 546,247, September 10, 1895, and to Case, No. 548,952, October 29, 1895.

Car couplers.—In this class 6,500 patents have been granted. An automatic car coupler of the vertical plane type in which there are means for automatically throwing and holding the knuckle in open position after locking device has been withdrawn. This obviates the necessity of the entrance of the railway employee between the cars. See patent to Browning, No. 254,106, February 28, 1882.

Buffers.—Fluid-pressure car buffers, in which a constant supply of fluid under pressure is provided by a pump or train pipe whereby the pressure against the buffers may be maintained as required, are shown in patents to Balderston, No. 287,084, October 23, 1883, and to Leonard, No. 543,030, July 23, 1895. Vestibule trains, in which the cars are connected to one another by inclosed passages, which at their meeting ends are provided with yieldingly supported door-like frames engaging one another by frictional contact, usually, whereby end rocking of cars is prevented in starting and stopping the train, and while running the lateral oscillation of the cars is reduced to a minimum, are shown in patents to Sessions, No. 373,098, November 15, 1887, and to Pullman, No. 403,137, May 14, 1889. Car frames in which the trussed structure is built up of rolled-steel plates, angles, and channels whereby a car body of great resistance to telescoping or crushing is obtained in case of collision or derailment, are shown in patents to Bissell, No. 457,486, August 11, 1891, and to Jewett, No. 512,969, January 16, 1894. Street-car trucks consisting of a rigid frame independent of the car body and adapted to support the car motor are shown in patent to Brill, No. 430,418, June 17, 1890. Another development in the street-car truck is of the bogie type, which is also adapted to support the motor. See patent to McGuire and Hubbard, No. 531,208, December 18, 1894. Metallic car trucks made of common rolled-steel sections or of pressed sheet-steel plates are shown in patents to Voss, No. 431,089, July 1, 1890, and to Fox, No. 505,159, September 19, 1893. Dumping cars wherein the unloading of each car is accomplished by a train pipe and compressed-air motor controlled from the locomotive are shown in patents to Thayer, No. 404,447, June 4, 1889, and to Duff, No. 409,394, August 20, 1889.

Demand for American Tin Plate at Geneva.

Consul Ridgely writes from Geneva, November 13, 1896:

There is evidence of at least a small demand in Geneva for American tin plate—that is to say, for the raw material packed in boxes; also, for black sheets packed in bundles. If any American manufacturer of this material will send, as early as possible, price list and terms to me, I will endeavor to put them in the hands of at least one intending purchaser.

NEW INVENTIONS.

Wm. C. Jerome and Byron B. Brown of Manhattan, N. Y., have patented a novel bicycle support which seems to be something of value to the bicycle world. It is composed of a tubular member, slotted longitudinally, and the locking staples at the lower and upper ends with spring supporting rods, the sliding key has a loop or handle, and means for securing the loop to the upper or lower staple. It is said that this rest permits the stopping of the bicycle with ease and comfort without dismounting.

George W. Cressman, of Barren Hill, Pa., has invented a new car fender which it is said will pick a man up off of a track as easy as old Silas Wegg used to fall into poetry.

Mary F. Henderson, Washington, D. C., has invented an improved bicycle cushion with two soft cushion lobes in connection with a depression in the centre of the seat and a firmer border of yielding material. Bicyclists who have seen this seat claim that it will rapidly grow into popularity.

Edward L. Vanderburgh, of Bayonne, N. J., has invented a baby carrier. This carrier is composed of a wicker basket or receptacle, having a stout wire running through it longitudinally and bent near the rear end to form an eye or ring, a rigid bail detachably attached to the sides or edges near the forward end and formed with an eye or ring at its centre and a strap the ends of which are engaged with the eyes or rings. This carrier seems to be a good thing for present and future mothers.

Mr. Wm. P. Andrews, of Brierfield, Va., has invented a fly fan which ought to be a great blessing to all during the months of July, August and September and especially to all bald headed men. It is a little contrivance attached to a chair which can be operated by a pedal, which moves the fan-staff and keeps the fan in constant motion, much to the annoyance and terror of all flies.

Interview With an Insurance Agent.

A tall, guant, lean, lank, bony, skinny Insurance Agent who had not physical vitality enough to get himself insured, dropped into this office and said he would like to insure the Editor. He said, however, he would have to ask a number of questions which the Editor would have to answer correctly. The Editor told him to go ahead with his questions. He took out the blank application, filled in the date, the name, the age and the residence. He then said, "Are you ever troubled with vertigo or dizziness?" I replied that vertigo and dizziness have been concomitant evils in my family during the last ten generations. His long face lengthened an inch. He said: "Has any member of your family ever been afflicted with tuberculosis?" I told him that tuberculosis was one of the favorite diseases of my family and that most of them had tubercolosed more or less since the foundation of the family. His face dropped another inch. He then asked if there had been any such disease as typhoid-fever associated with the family during the past five years? I told him that typhoid fever had been a constant member of our family since 1812. It had been attached to a distinguished member of the family during the war with Great Britain, and had never gotten over its fondness for the family since. That it had always associated with some member of the family more or less each year, and took a special pleasure in decimating the home circle every once in a while. His face lengthened another inch. He then inquired if Brights disease had ever prevailed in the family? I told him that that sickness was the family's special piece of furniture, a sort of an heirloom as it were, and that I doubted if he could find a brighter example of Brights disease on the face of the earth than in my immediate balawick. His face lengthened another inch. In order to convince him more thoroughly that I was just the subject for him to insure, I informed him that my family physician had always insisted that I was especially adapted to heart disease, paralysis and galloping consumption. The astounded agent looked at me a moment wrapped up his application, pushed it into his breast pocket, and said that it just occurred to him that he had an invitation to take lunch with a friend at 12 o'clock and it was now half past one, but that he would call again as soon as it was convenient. Several weeks have since passed but no insurance agent has put in an appearance. Our plan beats the sign "Look Out For the Vicious Dog," posted on the gateways of some of the Pennsylvania farms to keep the tramps away.

The International Exhibition in the Land of the Midnight Sun.

A whole generation has passed since Sweden invited its neighbors to meet in the peaceful name of industry at its Capital, so renowned for its beauty. The first great Scandinavian exhibition took place at Stockholm in 1866, the second and third at Copenhagen in the year 1872 and 1888, and now Sweden is preparing with all possible activity for the fourth great Scandinavian exhibition at Stockholm in 1897.

And it is not only Sweden that exerts itself to show in a worthy manner its flourishing culture and economy at the end of the nineteenth century, but the same is being done by the neighboring countries, Norway and Denmark. It is, in a word, the whole Scandinavian North united by the strong bonds of near relationship, similar political interests and continually increased commercial connections, which in 1897 will show the fruits of ancient culture and the uninterrupted development of nearly ninety years of peace. The Exhibition Grounds are situated in the beginning of Djurgården, the Bois de Bologne and the great pleasure park of Stockholm, where several summer restaurants and other pleasure establishments, such as Hasselbacken, Skansen, Tivoli, Alhambra, Novilla, and others are situated. Djurgården is one great, wild park, surrounded by water on all sides, with fine promenades, romantic rocks and sunny meadows. The Exhibition Grounds may be reached from Stockholm both by land and by means of any of a multitude of steam launches plying between the different parts of the city and Djurgården. It is only about fifteen or twenty minutes walk from the center of the city to the Exhibition Grounds. The main thoroughfare goes along the shores of Nybroviken, through the newest and most elegant part of Stockholm, Ostermalm, and down its grandest boulevard, Strandvägen, with its modern, magnificent residences and its shady avenues of lime-trees. The Exhibition Grounds, which occupy an area of about 210,000 square metres, are not large, but are surely the handsomest that have ever been offered an exhibition. The Grounds are situated on a narrow point of land projecting towards Ostermalm, with the idyllic Djurgårdsbrunnsviken on one side and fronting on the beautiful harbor of Stockholm on the other. The land is not level, but divided in several terraces, sloping down towards the water on both sides, and at the back rising in steep hills, on the top of which the renowned culture-historical open air museum and zoological gardens of Skansen are situated. On account of their situation, with three extensive waterfronts to the east and west, the Exhibition Grounds are naturally divided into two sections, between which passes the great thoroughfare to Djurgården. Over this thoroughfare there are built three viaducts connecting the two sections of the Exhibition Grounds. The Exhibition will be opened on the fifteenth of May and closed on the first of October, 1897.

The great Industrial Hall is a gigantic wooden building in the center of the eastern section of the Grounds. The Hall, which is the greatest wooden building that has ever been constructed, and whose material has been chosen on account of Sweden being the greatest wood exporting country in the world has a floor surface of 17,000 square metres. The great cupola rises to a height of nearly 100 metres and is surrounded by four minarets containing lifts communicating with prospect bridges connecting the minarets at a height of about fifty metres. At this airy height, from which a fine view is to be had of the Exhibition Grounds and Stockholm with its environs, so renowned for their beauty, with their sinuous bays and inlets and wooden-covered islets—here in mid-air, there is a large cafe where refreshments are served.

The Northern Museum with its provisional addition is a monumental structure of unusual magnificence, and with a floor surface of 5,000 square metres. This building contains the Cultural Exhibit, or every thing belonging to science, education and hygiene, besides the great collective exhibits of household sloyd in which the whole land partakes—Sweden being especially renowned for its products in this branch of industry.

The Fishery Hall, which has a floor surface of 2,800 metres, lies on the shore of the Djurgårdsbrunnsviken, more than half of it being built out

over the water which extends under the building and in its center forms a vast basin. On the side next to the water, the Hall is surrounded by a circular landing to which it is intended to fasten fishing boats of different kinds and types. Norway with its enormous fisheries will build its own great fishery hall.

The Machinery Hall, which is situated on the shore of the harbor on the Baltic side, is a colossal building of iron and glass, consisting of one great dome with a span of forty metres, 140 metres long and with a floor surface of 10,000 square metres. From the south side of the Hall there is a viaduct crossing "Allmänna Grand," the street at whose foot all the steam launches from the city land, over to the special section for steam boilers.

The Art Hall, the finest building on the Exhibition Grounds, is situated near the Machinery Hall, but a little farther from the shore. It is immaculately white, and has an open loggia outside the foreign exhibit. It is entirely covered with stucco and has a wide, elaborate cornice.

The Army and Navy Exhibits are contained in a very unique building near the water, over which the Naval Division extends in the form of the bows of an ancient war ship.

A short distance beyond the Fishery Hall, on a point of land projecting into the Djurgårdsbrunnsviken, and partly built on ground formed by filling into the sound, "Old Stockholm" lies reflecting its ancient walls in the water. The most renowned buildings are the imitations of the old royal castle, "Tre Kronor," Storkyrkan, the oldest church in Stockholm, where Olaus Petri first publicly declared the Reformation, and the old city hall of Stockholm with Stortorget, the scene of the great Stockholm Blood Bath, in 1530. In "Old Stockholm" there will be several shops and stalls in the style in vogue during the sixteenth century, and on the ground floors of the houses coppersmiths, locksmiths, and tin-casters will have their workshops. An old goldsmith's shop and a printing office in the style of the sixteenth century will also be included.

The most prominent among the separate pavilions of the Exhibition is the one in which the City of Stockholm gives an exposition of the state of the community at the end of this century. The stately pavilion, which is situated to the left of the great open promenade between the main entrance and the Industrial Hall, occupies an area of about 1,100 square metres, with a floor surface of 700 square metres. The building is divided into a large and a small pavilion united by an open portico. On the interior side of the portico, there is a yard with fruit trees and plants, surrounded by a semi-circular gallery. The two pavilions are to contain models of hospitals and poor houses, a large relief chart of Stockholm, and exhibits of hygienic arrangements, etc. An interesting exposition will be a section of a street 33 feet wide in natural size, with its gas and water pipes, electric cables and sewers. A painting above the section shows a whole street in perspective, and with lively traffic.

Just inside the main entrance, near the shore of Djurgårdsbrunnsviken, and partly built out over the water, is the great pavilion containing the Tourists' and Sportsmen's Exhibit. This Exhibit will not be a special exposition of a large number of similar articles, but a collective exhibition in panoramic style. The building will be supplied with niches containing scenes representing nature and sportsmen's life in the North. Cook & Son, of London, will have a special exhibit of great interest for tourists.

This exhibit will be situated in a special pavilion up on the hill where Hammer's Villa lies, and bids fair to be a very interesting Swedish historical museum of theatrical curiosities. The Jenny Lind Collection and the many objects from the times of the ancient opera, are specially noteworthy. Even Christina Nilsson contributes to the exhibit with several valuable objects.

The Horticultural Exhibit is contained in a large hall beside the Theatrical and Musical Exhibit, on the beautiful hill near Hasselbacken Restaurant. The exhibit embraces a permanent exhibit, a spring exhibit, 30 July—2 August, and an autumn exhibit 22 September—1 October.

The Press Pavilion is situated in the middle of the eastern section of the Exhibition Grounds, between the Industrial Hall and the Djurgårdsbrunnsviken. It is a stately stone villa formerly belonging to Consul C. E. Liljewalch, and is entirely at the disposition of the Press. It contains two suites of fine rooms, most of them provided with balconies from which a splendid view may be had over the Exhibition Grounds and the water.

Among the large restaurants of the Exhibition, the famous Hasselbacken takes the first place. A large restaurant will also be built on the shore of the Djurgårdsbrunnsviken, around the present Panorama Building, one in the addition of the Northern Museum Building, and under the beautiful terrace where the viaduct from the Machinery Hall opens out upon the western section of the Exhibition Grounds, and one outside of the Machinery Hall, on the shore of the harbor.

Besides these, there will be several pavilions where the great breweries will sell beer and sandwiches.

In front of the entrance to the Industrial Hall, there will be a grand fountain designed by Architect Ferdinand Boberg, and with a flow of 250 cubic metres per hour. In the Djurgårdsbrunnsviken, a short distance from land, there will be an illuminated fountain, which will rise up out of the water of the sound, and can thus be circumnavigated.

At a distance of 33 metres from the shore of the Djurgårdsbrunnsviken, a colossal, illuminated grotto will be built after the idea of Architect Ferdinand Boberg. The grotto lies out in the middle of the sound and only communicates with the shore by means of a long bridge. It will offer a whole series of light-effects and surprises, and is calculated to give room for 10 boats each containing the passengers. It will take fifteen minutes to row around the grotto and the inside.

The Fourth International Press Congress will be held in Stockholm near the end of June.

King Oscar's 25 years' jubilee will be celebrated in September.

On both of these occasions, and especially at the King's jubilee, there will be great festivities. King Oscar, who is especially interested in the Press, will give a banquet for the congress at the Drottningholm Palace near Stockholm.

Mr. August Peterson, the Swedish and Norwegian Vice Consul in this city, will be pleased to furnish to intending visitors all necessary information how to reach the Exhibition and how to enjoy it in the most economical manner.

The Stevens Institute of Technology's 25th Anniversary.

As already announced in these columns, the Stevens Institute of Technology will celebrate its 25th anniversary on February 18th and 19th next. Preparations are now being actively pushed to make the event a memorable one in the annals of the Institute. The banquet to be held at the Hotel Waldorf, New York, will be attended by several hundred graduates and undergraduates, as well as by many representative men in the engineering and mechanic arts, who have been invited to be present.

The exhibition of the work of the Institute's graduates promises to be one of the most attractive features of the celebration. The applications for space will tax severely the capacity and facilities of the institute, as many of the exhibits will be shown in actual operation. The exhibits range from single devices to a complete electric light plant operated by gas engine. The latter is the invention of Mr. F. P. Nash, a graduate of the Institute, who bears the distinction of being among the five most prolific inventors in the United States, there being over 200 patents issued to him, on various types and details of gas engines, water meters, etc. The exhibition of photographs, working drawings of apparatus designed, and works carried out, by graduates will also be of more than usual interest and value, and will be open to the public at the Institute, Hoboken, N. J., on Feb. 19.

The present occasion seems a fit one to call attention to the needs of the Stevens Institute of Technology, whose work has year by year outrun its facilities. The founder of the Institute, Edwin A. Stevens, Esq., originally bequeathed a plot of ground and \$150,000 for the erection of a building "suitable for an institution of learning," together with \$500,000 as an endowment fund. From this amount the U. S. Government in 1870 took about \$45,000 as a collateral inheritance tax. As the courses of the institute were broadened, increased funds were required for equipment, but as these were not available from the income of the endowment fund, the worthy President of the Institute, Dr. Henry Morton has in the past generously provided the increased facilities placed at the disposal of students out of his private funds, and we learn that in connection with the coming anniversary he has already transferred to the Trustees of the Institute 1,000 shares of the stock of the Texas Pacific R. R., to be held by them until, by reason of its increased value and other donations for the same object, a fund will be made up adequate to the erection and maintenance of a much needed new building, for which a considerable amount has been already raised by the Alumni Association.

This stock is today worth \$10,000, but, representing as it does a property of great intrinsic value, may be reasonably expected to appreciate largely within a moderate time. This idea of presenting to the Institute something of growing value, which may be likely to advance so as to meet the enlarging demands of the future is, we think, worthy of imitation.

Can the Practice in Patent Causes be Improved or Simplified.

BY JOSEPH D. GALLAGHER.

Read before the American Association of Inventors and Manufacturers at Washington, D. C., January 19, 1897.

"The benefits that flow from the American Patent System."

As these benefits are, in many cases, only obtainable by an enforcement in the Courts of the patent privilege or monopoly, they depend for a great part of their value on the procedure provided for such enforcement. The value of the monopoly may be greatly enhanced by a simple, inexpensive procedure, or, on the other hand, the grant of the government may be deprived of all value by a complicated and expensive process.

The machinery provided for the enforcement of the American patent may therefore be said to be a very important part of the American Patent System.

The two forms of action given by the United States Statutes by which this monopoly may be enforced are:

1. An action at law for infringement, in which, when the issues are framed, they are tried before a judge and jury.

2. The well known action in equity, in which, when the cause is at issue, the proofs are first taken before an examiner, and, when the proofs are complete, the record is printed and the cause argued before an equity judge.

The first remedy, an action at law, formerly much used, has been largely, if not quite, superseded by the action in equity, owing doubtless, to the difficulty of trying cases of this nature before the ordinary traverse jury, and owing also, in some degree, to the unfortunate fact that in such trials, corporate or wealthy litigants are by no means assured of exact justice.

This common law remedy, however, had many advantages, and while probably in these days an adequate remedy, serves to show that other methods of trial than those provided by our present equity system are possible in patent causes, and may serve further to suggest some remedies for the defects in our equity practice.

Patent suits in equity are, as at present conducted, proverbial for two things, cost and delay.

These two things make the poor inventor hesitate before trying to enforce his rights, and operate as a practical denial of justice in many cases where the patentee is poor and the infringer rich. Not only is this true, but the fact that patent suits may be made enormously expensive, puts an instrument in the hands of owners of patents, possibly in themselves of little value, by which they are enabled to throttle honest competition.

While it seems hardly necessary to cite cases to prove these allegations, so universally admitted, the following cases, both of which actually occurred, will serve to illustrate the grievous wrong that may be done a poor litigant under our present practice. In one case, a small but ingenious manufacturer had devised and patented a process, by which he was enabled to produce a superior product, at a much lower cost than was possible by any of the processes then known and used in the same line of manufacture. It happened that the larger part of the business in this line was done or controlled by a very wealthy and powerful corporation. This Company wished to secure this invention for its own use, and its agents approached the patentee and offered him twenty thousand dollars for his patent. This offer he refused, and the agents of the Company plainly told the patentee that he could sell them the patent for twenty thousand dollars, or that they would use the process without payment, and he could sue if he thought it best. Being advised (not by the writer, for he was not in the case) that his patent was valid, he refused to sell, and, when the Company began to infringe, as it did at once, he brought suit for infringement. This suit ruined him. His expert was kept on the stand under cross-examination for many weeks, testimony was taken by the defence all over the country, and his counsel dragged from end to end of the continent to be present at the examinations, and in all the ways known to skillful and not too scrupulous lawyers, the expense of the suit was increased, until before the time came to take rebutting proofs, the complainant, ruined by the expense became insolvent, and the defendant, which during all this time had been able to easily compete with him by the infringing use of his process, finally

purchased the patent for a song from his assignee. This is a case that actually happened, and the picture is not overdrawn.

The second case, illustrating how the possession of valueless patents may be made an instrument of oppression, is within the writer's own professional experience.

A wealthy corporation owned a patent claimed to be a foundation patent in a certain art, and also a number of minor patents of no great value and many of them of doubtful validity. A suit was begun on the alleged foundation patent, against a company having a small but well established business in the same line, and making a greatly improved article under patented inventions of their own, and at the same time a number of additional suits were begun on other patents of no special value or validity, but which, nevertheless, had to be defended. The result was that although the defence to these suits was conducted in a way to cause the least possible expense to the defendants and thus the defendants saved many thousand dollars of outlay, the expense of experts and of taking testimony in different parts of the country, and large printing bills caused by interminable cross-examinations, coupled to the damage to the business necessarily incident to these suits, and the threats of suits against users, so crippled the defendants, that, before the suits could be argued, they were compelled to sell out to the complainants and give up their business, and while in this settlement they obtained a considerable price, it was by no means what the business had once been worth. And yet had the defendants been able to secure a prompt and reasonably inexpensive trial of the actions, they should have won them, or at all events the principal ones.

These two cases are cited because they are exact illustrations of what is meant when it is said that to the poor inventor the cost and delay of these causes operates, in many cases, as a denial of justice and a nullification of the grant of the Government, and in other cases gives a wealthy patentee an instrument of oppression that enables him to crush out honest competition.

Now what are the causes of this cost and delay in these actions, and are they remediable.

We can lay our finger on one thing that is largely if not wholly, responsible for both cost and delay. This fact is, that the judge deciding the case, does not take the testimony, but that duty is relegated to an examiner with practically no power, except to swear witnesses, preserve order, and grant adjournments. The result of this is, as regards expense, even in cases where the parties honestly desire a speedy decision, that very often folio upon folio of testimony is taken, and days consumed in taking it, because the examiner is not to decide the case, and has no power to rule on evidence offered. Let us assume, for example, that we are taking testimony for the defence in a case involving chemical equivalents. Counsel for the defendant knows of a certain line of defence which may be material and may not be, depending entirely on the view to be taken as to the equivalency of certain chemicals in this art, by the judge deciding the case. Were the testimony being taken before that judge, counsel would offer to introduce such testimony and the judge would then and there rule upon its materiality. With our present practice, counsel cannot know in advance what view the deciding judge will take, and to be on the safe side, he introduces this testimony, in some instances, possibly filling the larger part of his record with it, the complainant, in rebuttal is forced to meet this evidence and thus many pages, perhaps hundreds, and even thousands, are filled with evidence, which possibly the judge deciding the case will simply refuse to consider.

This illustration of a cause of expense that the most able and scrupulous lawyer may be unable to avoid in justice to his client, and which may nevertheless be wholly needless.

Another fruitful source of expense arises from the refusal of witnesses, especially some expert witnesses, to answer proper questions on cross-examination. How many times have we seen able counsel try for days at a time to get from some agile expert a direct and responsive answer to a simple question, with the sole result of filling pages of the record with evasive answers, and finally give it up in despair. All this would be avoided were this cross-examination had before the judge who decided the case.

If the two things can cause all the delay and cost, that we know they do, when parties have no desire to encumber the record, or increase the expense, or delay the trial, what infinite possibilities they offer to the dishonest or unscrupulous litigant who seeks to use the process of the courts as an instrument of oppression.

To these two ways of causing delays and cost may be added the other fruitful cause of delay, unlimited adjournments. We all know how easy it is to get a hearing postponed and how hard it is to get a case forced to trial in the face of strenuous opposition by opposing counsel. This, again, would be done away with, did the judge deciding the case take the testimony.

Could we eliminate from every patent case all immaterial testimony, all evasive answers, and compel its trial from day to day until completed, more than half the expense and nineteen twentieths of the delay would be avoided. Can this be done?

It certainly can, and the present method of trying equity cases in New Jersey, in its Court of Chancery, can be, possibly with some slight modifications, applied to the trial of patent cases in the United States Equity Courts.

Prior to Eighteen hundred and seventy one, equity cases in New Jersey were tried in the old English fashion, still followed in the United States Courts; when the cause was at issue, testimony was taken before a Master and Examiner, who reduced it to writing, and returned it into the Court of Chancery, the case was then regularly noticed for argument and argued, in time, before the Chancellor, who in the course of time, decided it. This practice was open to the same objections and led to the same abuses we find in the present patent practice, and the Court of Chancery came into great disfavor with the citizens of the State. At this date a statute was enacted by the legislature, providing for the appointment by the Chancellor of an officer to be known as a Vice-Chancellor, and for the reference by the Chancellor of causes for trial before him orally and his advisory opinion. This statute has been followed by others increasing the number of Vice-Chancellors, until there are now five in that little State. These Vice-Chancellors hold court at different points in the State, and the large majority of equity cases are referred to, and tried and determined by them, the Chancellor as a matter of course, making any decree they advise.

The practice is as follows: The case is brought to issue in the usual way, and, when at issue, on motion of either side, is referred to a Vice-Chancellor, if the parties agree on a Vice-Chancellor, to the one agreed upon, if not, to such as the Chancellor selects. After the reference, counsel, on motion of either party, or by agreement, attend before the Vice-Chancellor and have a time fixed for the hearing of the case, naming the time that they think the trial will consume. At the time set, the testimony is taken orally before the Vice-Chancellor, taken down and transcribed by a stenographer, and usually, the case is orally argued at the close of the testimony, and then within a reasonable time, fixed by the Vice-Chancellor, briefs are handed in.

The result of this method of trying equity cases has been, that cases which, under the old practice, would have dragged their slow length through the Courts for years, and have cost thousands of dollars, are now tried and argued in a few days, and decided as a rule within a few months from the time the bill was filed, and the Court of Chancery, from being a hissing and a by-word among the people, has grown in popular favor, and is now the favorite forum in New Jersey.

It may be said that patent causes, involving intricate scientific questions, cannot be tried in this way. The answer to this is, that many most intricate chemical and mechanical problems arise in cases other than patent cases, and these are tried successfully in the New Jersey Court of Chancery. Again, it has been found feasible to try patent cases; at *nisi prius* before a judge and jury, and no greater difficulty would arise in trying them before the judge without the jury.

To the objection that witnesses from distant States could not be brought on to testify, there are two answers; First, it would probably, in most cases, be as easy to bring on these witnesses as it is to take counsel, and in many instances clients, to their residences. Second, that, in cases where this was not possible, the testimony would be taken by commission, as is done in our Chancery Court in such cases.

It may be objected, that if testimony were taken by commission, it would be a return to the evils of the present system and that nothing would be gained by the change suggested. Were the order to take testimony by commission an order of course, a purely formal and ex-parte matter, this would be true. But if this order could only be obtained on notice and a statement of the testimony proposed to be taken, and if the advisory master to whom the case was referred had the power to determine whether the order should be granted, or to say that he would personally attend and take the testimony, the danger of an abuse of this process would be greatly lessened.

If, in addition to this power, the advisory master could, when he thought it proper, compel the examining party to pay the fees and expenses of opposing counsel for attendance on the taking of such testimony, it would wholly prevent such abuse. A case where such fees and expenses might properly be ordered paid by the examining party would arise where one party insisted upon taking testimony of certain distant witnesses, which testimony the advisory master considered of doubtful materiality or relevancy. The fees and expenses having been paid in the first instance by the examining party, if, on a consideration of the whole case, the master

thought the testimony properly taken, could be taxed in the costs against the losing party.

In order to try patent cases in this method, it would be necessary to increase, in some way, the number of judges authorized to hear and determine patent causes in the first instance, and of course legislation for this purpose would be necessary. This increase might be effected in several ways, either by adding to the number of District Judges, or by authorizing the appointment, in several districts, by the Circuit Judges, officers corresponding to Vice-Chancellors in New Jersey, authorized to hear patent causes and advise the Circuit Court what decree should be made, or by permitting counsel in patent causes to agree, subject to confirmation by the Court, upon some competent lawyer to hear the cause and advise a decree, and when they could not agree, by permitting the Circuit Court to select such a lawyer.

If either of these latter methods were adopted, the procedure would be as follows: the cause would be brought to issue, and would then be referred to one of these officers, who would take all the testimony orally, have all the power of a Circuit Court judge as to the admission of evidence and the general conduct of the case, and might, for the convenience of counsel, sit in different places in the district, or even, where he thought proper, take testimony out of the district, and after hearing argument he would write an opinion and advise the decree, the Circuit Court Judge would then as a matter of course make the decree advised.

From this decree an appeal could be taken as now. These Vice-Chancellors, Advisory Masters, or whatever they might be called, could be either paid by the government a certain annual salary, or a certain per diem and a case fee, or it might be provided that the parties litigant should pay the per diem and case fee, to be taxed in the costs against the losing party.

This latter plan commends itself as the easiest one to get enacted into legislation, and its cost to the parties would be more than reimbursed by the amount they would save in the cost of printing in the first instance, and as heretofore explained, in the taking of testimony, and the fees of counsel, and more than all, the litigants would be saved the enormous delay now common in patent cases.

In brief, the practice in equity in the United States Courts, is only fitted to the period before the invention of stenography and the typewriter. It is behind the age. The man who would retain it should, to be consistent, take the stage coach and canal boat instead of the limited express, should banish his stenographer, break up his typewriting machine, and write in longhand by the light of a tallow dip his laborious briefs. But, if some system, such as is suggested, be adopted, the equity practice will no longer lag one hundred years in the rear but march abreast of other modern improvements. By its aid the inventor will, at the minimum of cost, fully enjoy the privilege conferred upon him by the government, now, in many instances, practically nullified by the antiquated methods of enforcing and protecting it, and the value of the patent privilege be increased to an almost unlimited degree.

If, to this system of trying patent causes, there could be added a reform in the matter of expert testimony, the cost and delay in patent litigation would be still further reduced. One reform in this direction would be to forbid the introduction of expert testimony on either side, and to permit the trial judge to select an expert, either to sit with him in the trial, or to examine the testimony and exhibits on both sides, and advise him on the scientific questions involved, the fees of this expert to be taxed as court costs against the losing party, and the written opinion of the expert to form a part of the printed record on appeal, if one were taken.

Expert testimony, or opinion testimony is allowed in such cases upon the theory that the opinions of scientific men, on subjects within their own domain will enlighten the court and enable it to reach a proper decision as to matters of scientific fact involved in the case, which would be beyond its ken without such aid. Whether the conflicting testimony of opposing experts has, as a general rule this result, may well be doubted, but on this theory only it is admitted. Clearly the impartial, unbiassed testimony of one expert would have this effect in a much higher degree. This practice would not only free these suits from a great cause of expense and delay, but it would distinctly add to the value of the expert's opinion, and would tend to raise the standard of experts, as only those of known ability and honesty would ever be called upon to act in this semi-judicial capacity.

It has been impossible in a paper like this to more than sketch the outline of either the defects in our present equity practice or the remedies proposed. But many here present can from their own experience fill in the picture of the defects, and all will agree that some practice should be adopted in these cases that will reduce the cost and speed the cause, to the end that the American Patent System, so

admirable in some of its features, may be equally admirable in all, and that the patent monopoly, theoretically so valuable, may never be nullified by the practical impossibility of its enforcement.

THE GREAT EVENT OF NINETEEN HUNDRED.

The Great Exposition Which is to Take Place in Paris in 1900.

This exposition will afford unrivaled opportunities to make known to the world the resources of the United States and their achievements and facilities in the various fields of production. It is earnestly to be hoped that these opportunities will be improved to the fullest extent, and that not only will adequate provision be made for such representation by our Government as is in keeping with its importance, but that individual manufacturers and producers will make a full exhibit of the leading products of American genius and skill.

The exposition will offer rare opportunities for American artists, inventors, manufacturers, and workers in every field of human effort to illustrate once more to the world the vastness of our resources, the superiority of many of our industrial implements and processes, and the variety and excellence of our productions. It is hoped that American manufacturers and producers in all lines will be fully represented.

The French are a very clever and prosperous people. They enter upon every great national enterprise with a spirit of enthusiasm that always augurs success.

Consul General Morss in reporting to the Department of State the prospects and present status of the great exposition has this to say about its financial arrangements:

One hundred million francs (\$20,000,000) was provided as a guaranty fund for the exposition. Of this amount, 20,000,000 francs was appropriated by the National Government and 20,000,000 francs by the city of Paris, while 60,000,000 francs represent the net proceeds of an emission of 3,250,000 bonds of 20 francs each. These bonds were issued by the Government with the cooperation of five leading financial institutions—the Credit Lyonnais, the Credit Foncier, the Comptoir National d'Escompte, the Societe Generale pour Favoriser le Developpement du Commerce et de l'Industrie en France, and the Societe Generale de Credit Industriel et Commercial. These institutions underwrote bonds to the amount of 2,400,000 francs and receive a commission of 5 per cent on the sales. After providing for this commission and for the other expenses of the issue, there remain 60,000,000 francs which are deposited at the Caisse des Depots et Consignations, until 1900, at 2½ per cent interest, the Bank of France agreeing to make advances from time to time for preliminary expenses to the amount of 6,000,000 francs at 1¼ per cent interest, upon the security of receipts of the Caisse des Depots et Consignations for deposits of the profits of the bonds.

The bonds bear no interest and are redeemable in tickets to the exposition. Each bond will entitle the holder to twenty tickets to the exposition, which at 1 franc each, will equal the face value of the bond. In lieu of interest, the holder participates in twenty nine drawings, comprising 4,313 prizes, aggregating 6,000,000 francs. Six drawings occurred in 1896, six each will take place during the years 1897, 1898, and 1899, and there will be six monthly drawings during the exposition. The prizes vary from 100 francs to 500,000 francs. The bonds are exempt from all taxation, although the prizes drawn are subject to a tax. The bonds also give the holders the right to considerable reductions in railway and steamboat fares in France or on the French lines on the Mediterranean during the exposition, or, in lieu thereof to a 25 per cent reduction in the price of admission to any spectacle or entertainment on the exposition grounds. In the event that the exposition should not take place for any reason, the drawings will cease and the bonds will be redeemed at par, without interest, by the State. All prizes drawn before that date will remain acquired to the winners.

Any surplus that may remain, after the expenses of the exposition are defrayed, will be divided equally between the national and municipal treasuries.

Commissioner Seymour has finally got the patent attorneys almost unanimously against his new reforms which the attorneys claim don't reform but rather impede the business of the office.

A Washington resident heard an awful crash at his front door. He thought another cyclone had struck the city. He rushed to the window and discovered that the news boy had simply thrown a New York Sunday paper into the door way.

Bicycling in Germany.

Complaints are very frequently made by traveling American bicycle riders in Germany of obstacles and delays to their travel caused by the very rigorously enforced laws governing the use of bicycles on the public roads in this country. For the benefit of these American bicycle tourists, a few of the more strictly enforced rules which cyclers are called upon to observe throughout the German Empire are cited.

Cycling on public streets and roads is subject in this country, and particularly in Saxony, to minute and most carefully enforced police regulations, which, indeed, in many places, prohibit entirely the use of brakeless machines. The roads are, as a rule, with but few exceptions, perfect, and wheeling is smooth and easy, but on account of the rainy weather which prevails most of the year, wheel guards for wet days are indispensable. In the first place, every machine must have an open plate or shield, affixed to the rod of the brake or handle bar and be provided with a spring lid, on which is engraved in clear lettering the name, profession and rank, and residence of the rider of the bicycle. In lieu of this, I would suggest that the card of rider, with address, etc., be attached to the handle bar, which would be in compliance with the law, and would temporarily answer every requirement in this way. The alarm bell is, of course, demanded everywhere. The law requires that the night lamp be placed rather high on the wheel and be kept lighted by the rider when traveling from within half an hour after sunset to half an hour before sunrise; furthermore, the light must shine through uncolored glass, before the rider. Each bicycle must be provided with an easily-managed brake, operating quickly and powerfully. Cycling on roads exclusively intended for pedestrians or on elevated footpaths of highways is strictly prohibited. Two bicyclers may ride side by side, when it can be done without blocking the thoroughfare or annoyance to other riders or vehicles; otherwise, single file is the rule. More than two machines are not allowed to occupy the road side by side under any circumstances. When meeting with other bicycles, or overtaking such, or, further, when approaching passages of the road where it is not possible to see a clear distance, or when going down a steep descent, the cyclist is obliged to give frequent and measured distance signals with his bell, as a matter of strict precaution in avoiding collision and to excite the attention of riders in the vicinity. A moderate speed of riding must be maintained at all times. Cycling at an extraordinary speed, speeding in any form, or "scorching," as it is termed in America, is forbidden on the highways everywhere in Germany. At very steep down grades of the roads the cyclist must dismount and guide his wheel until the descent is passed before remounting. Cyclers are also required to dismount at any time if called upon by police officials to do so and are obliged to give to such official any information he may deem necessary to demand. For disregard of any of the above rules and regulations, a fine not to exceed 60 marks (\$14.28) may be imposed or imprisonment in jail for not more than two weeks, or both, may be inflicted for each offense.

Stop-over Privilege at Washington.

A ten day stop over at Washington, D. C., is now granted on all through tickets between the East and West, via Baltimore & Ohio R. R. Stop-over will also be granted on the return journey made on round trip tickets, but not exceeding ten days. Passengers will deposit their tickets with the Ticket Agent at B. & O. R. Station in Washington, who will retain them until the journey is to be resumed, when they will be made good for continuous passage to destination by extension or exchange. This arrangement will doubtless be greatly appreciated by the traveling public because it will permit the holders of through tickets to make a brief visit to the National Capital without additional outlay for railroad fare.

The Ninety-Seven Bike.

The Age of Steel says: Among the changes or improvements made are the bevel gear; the nonpuncturable tire; the felt pedal, improved saddles and the invisible brake. The claim that leading makers are getting ready to put chainless wheels on the market is, according to reports, not altogether justifiable.

If Mr. McKinley could find an inventor who could devise some process by which the president could escape the on coming tide of office seekers he could well afford to give him the Consul Generalship at London which is now conceded will go to his cousin Osborne.

THE PATENT OFFICE.

Its Importance, Condition and Needs.

SECOND PAPER.—BY W. C. DODGE.

THE REMEDY.

The Patent Office should be re-organized, separated from the Interior Department and be made a separate bureau.

It should then be given the use of the building erected specially for it largely with its own money, and provided with all the help and appliances necessary to enable it to promptly and properly perform its duties.

The commissioner should be a man who has not only a knowledge of patent law, but also a knowledge of practical mechanics, more especially, if as now, he is to decide upon appeals from the board.

He should be appointed like a judge, for a long term of years or during good behavior. He should be selected with special reference to his fitness for the position, and he should be commissioner in fact as well as in name. He should be a man who thoroughly appreciates and believes in our patent system and who should be competent to instruct his subordinates in the manner of conducting the business and thus ensure greater uniformity of action.

Then there should be established a special court for the trial of Patent Causes.

The judges composing that court should be men who are not only familiar with patent law—which Justice Story denominated "the Metaphysics of the Law,"—but also with mechanism, and with mechanical drawings.

As it is now the Judges dislike to try a patent case because they are aware of their inability to understand the construction and operation of the mechanism, especially if it be a complicated case, such for instance as some of our electrical patents. Not only have they to understand the patent on which the suit is brought, but also those set up by the defense, frequently a dozen in number, most or all of them equally complicated and difficult to comprehend.

This difficulty has been greatly increased by dispensing with models; for, if it be true, as stated by Commissioner Leggett before the Senate Committee, that "not one in four of the Judges could read a drawing," how can they be expected to understand a case represented only by drawings?

As stated by Commissioner Leggett, "it is exceedingly difficult to get judges to touch patent cases. They dread them as they do the small-pox. Most of them have a horror of patent cases—not because they are incompetent Judges, but because to try a patent case needs something more than legal lore and judicial wisdom. It calls for a thorough knowledge of the applied sciences and practical art, a clear perception of mechanical principles, and familiarity with practical mechanics."

The result is, a delay in the trial of cases—unjust decisions and a lack of uniformity in decisions, so that as Commissioner Leggett said: "A judge in Chicago will make a decision today and another judge in Boston will reverse it tomorrow and thus we get conflicting opinions."

Even the Supreme Court has varied much in its position, especially with reference to re-issues and as to patentable inventions. With reference to re-issues, no one has attempted to and no one can reconcile the decisions of that court since 1881, with its decisions on the same question for forty-five years before. It has done what Justice Grier once said that court could not do—it has legislated by prescribing conditions not specified in the statute—such for instance as that the application for re-issue must be filed within two years from the date of the original; and that the patentee cannot change his claim even though it is apparent that the original claim does not protect the invention. It may be that it ought to be so, but if so the proper way is for Congress to so provide by law. It must be remembered also that property in a patent differs from all other property in that it exists for a few years only and hence it is important that there be means for speedy decision in relation thereto.

When a manufacturer is charged with infringement he does not want to go on piling up the damages for years in case the decision should be against him, and on the other hand he cannot afford to stop business and let the plant and capital invested lie idle for years. Hence not only individual but public interests demand speedy trials and decisions of patent suits.

Such a court whether sitting permanently at the Capital, or periodically at various points in the

country would be always in session—would have no other business and if composed of judges who as a general rule are competent to understand the cases without the aid of experts it could dispose of the cases in a very short time, and would give us decisions in much less time, and far more uniformity than under the present system.

I would make the decision of that court final, except in cases involving a construction of the law, which might be appealed to the Supreme Court direct. Very few cases would ever be appealed; generally only such as involved the construction of changes in the statute.

The evils of the present system are well illustrated by the Drive Well case which was nine times passed upon by different circuit courts, three times by the Supreme Court and then two years after the patent had expired it was finally decided by a construction of the statute which rendered the patent void!

So with the Bate Refrigerator case, which was thirteen years before the courts, and in which decisions were made as contradictory as day and night and then twenty-five years after the enactment of the law, we got from the Supreme Court a construction of the Statute which upset the prior decisions and office practice and which wiped out of existence more values than probably any decisions ever made.

If we had such a court sitting here and deciding patent cases every day its decisions would be a guide to the Patent Office and thus secure uniformity of action by the Office as well as by the court.

The Judiciary Committee of the House has twice reported in favor of such a court but nothing was done for the reason that at that time the Senate was just about to pass the bill establishing the Circuit Court of Appeals, which as the Chairman of the Committee said to us, it was thought would relieve the Supreme Court and secure greater uniformity—that they would try that first, and if it did not prove successful, they could then establish the patent court. It has doubtless relieved the Supreme Court somewhat, but I think the general opinion is that it has not remedied the other difficulties.

The reason why it is so difficult to secure action by Congress doubtless is, that the inventors of the country do not possess any political influence. They are generally persons of small means, at work in the shop or on the farm, and are unknown to members and Senators. The latter hear of such men as Edison, Brush and a few of the more prominent inventors, but of the great mass they never hear. I presume it is safe to say that not one Senator or Member in ten knows a single inventor.

Besides, the number of inventors is far less than is generally supposed. As a general rule, there has been an average of three patents to one inventor. So far we have issued about 593,500 patents which would give us but 191,166 inventors among the 150,000,000 people who have lived in the United States during the time the patent system has been in operation and including also the foreigners who have taken patents here during the same period.

The manufacturers are the parties who are most interested in patents, and if they would combine and bring to bear upon Congress one tenth of the influence they have in regard to the tariff, these matters could soon be fixed as they ought to be.

It is political influence and votes that controls legislation in such matters. Look for instance at the Agricultural Department. A few years ago it was a mere appendage of the Patent Office, occupying one or two rooms in the basement of the Patent Office building. Today it is a Department, with a Cabinet Officer at its head, has its own building and is supported wholly by large annual appropriations from the Treasury, while contributing nothing directly to the national revenues; while on the other hand, the Patent Office which is the only self-sustaining bureau the government has, or ever had, has a surplus to its credit of over \$4,500,000, every dollar of which has been paid by the inventors and their assignees and yet, it cannot get from Congress permission to use enough of its own funds to provide help and facilities necessary for the proper performance of its duties. Moreover, it is crowded out of its own building, erected mainly with its own funds.

Why this difference? Simply because farmers constitute a large portion of the voters of the country, and the inventors do not.

It surely is time that something was done to put the Patent Office and the patent system in a better condition.

The men who are trying to invent a process by which the embalming fluid can be squeezed out of the Bloody Chasm Corpse won't succeed. We are now one people and we have but one flag and that is the starry banner the most beautiful emblem in the world.

There are about twenty thousand government pap hunters who want to find an inventor with enough genius to invent a slot machine into which they can put their application and draw out just the office they want.

Bad Things for Inventors.

EDITOR OF THE INVENTIVE AGE:—Should an inventor, applying for a patent, visit Washington to inspect the Patent Office, and prosecute his application, he would find at the present time the following condition of things:

On entering the building at any time of day between 9 and 4 o'clock he would most likely stumble in every hall over laborers sweeping or mopping the floors, a labor which is never performed after or before office hours, but persistently followed at times when it adds most to the discomfort and disgust of all visitors.

He would pick his way with difficulty through halls encumbered and darkened with rude frames, in which copies of patents are packed by the hundred thousand, and in one at least of the most frequented halls he would find such an arrangement most unsightly and disorderly, with copies of patents strewn parts of the floor, and shouts and gabble of office boys searching for copies filling the corridors with noise.

He would find a large array of valuable, but almost prehistoric models displayed in cases, and would wonder why modern arts and improvements were no longer so illustrated.

He would find the rooms of examiners of applications overcrowded and ill ventilated. He would find the accommodations for attorneys and inventors for amending their cases and searching the art, although well arranged yet too cramped, and their investigations disturbed by loud bustle and conversations of office employees.

Turning from this investigation of the building to the prosecution of his application he would find that the whole practice of the Patent Office for years had been suddenly disturbed by the issuance of a set of new rules, issued with the good intention of simplifying the practice but resulting in complicating and muddling it. Uniformity and stability of practice the growth of long experience, and many adjudications and rulings, he would find supplanted by a large mass of new rules, thrown into the hoppers of thirty or forty different tribunals in the office, to be reground, and remoulded and then rehashed by incoming new officials, until after a long and painful experience a new practice shall be involved.

If his application had fallen by the way side, owing to the operation of the old rules, it would be completely buried out of sight by the non-operation of the new ones. If he relied upon a long series of adjudications to sustain the procedure of his application, he would find that no such procedure longer existed, but a new one, necessarily resulting from a construction given to new language, and from this construction no appeal allowed from the examiner giving it, unless alleged by the applicant to be "an abuse of discretion" by that examiner. He would find that these new rules had been adopted against the protest of a large majority of attorneys practicing before the office, who were influenced alone by the interests of their clients. He would conclude that a revision which clears is good, but one that adds uncertainty to confusion is bad.

Perhaps bewildered, if not disgusted at the Patent Office he turns to Congress to ascertain what is there being done for inventors, the weary pilgrim will find no rest.

He will find that a new act labeled "H. R. 3014" had just passed the House and ready for passage by the Senate, cutting down the time within which to prosecute his application in the Patent Office from two years to six months. And this short time is given in which to act, no matter how complicated the invention, how voluminous the prior state of the art no matter whether he or any one else understands the new rules or not, no matter what his rights are to his own invention, no matter as to anything, unless the applicant can show to the satisfaction of the Commissioner that his delay has been "unavoidable." Not "unavoidable on part of the Patent Office; but unavoidable on part of the bewildered and harried inventor, or his entangled attorney.

Again he would find under this H. R. Act that if while he had been experimenting with labor and expense to perfect his invention, some obscure or foreign paper had published an account of his experiments more than two years before he reached the Patent Office with his completed application, such publication, unknown to him, would be fatal to his application, and the invention be public property. The long experimental work of a Langley or a Maxim, an Ericsson, a Howe, or a Morse, if thus published would be fatal to their applications, or fatal to their patents if obtained.

Again he would learn that notwithstanding that the Constitution of this country provides that Congress shall legislate only to give to him an "exclusive right" to his invention for a term of years, yet by this Act this exclusive right during the life of his patent is destroyed by cutting off his power to bring suits in all cases where his invention has been used, even without his knowledge or consent, for more than six years. And this restriction expressly imposed for even in suits already existing.

I have not pointed out all the disabilities that are heaped, and are to be heaped upon inventors by a poor Patent Office, poor rules, and a poor law, but sufficient to show that so far as maintaining and increasing the rights and privileges of inventors, his public servants and legislators are doing much, and doing it well, to hamper and defeat them. These evils when considered in connection with those flowing from that scandalous class of attorneys who dupe inventors by false pretenses of rewards, small fees, and no fees, "no cure no pay" quacks, are discouraging to that great class whom the constitution and laws of our country were designed to encourage and protect.

WILLIAM H. DOOLITTLE.

Ocean Telephony.

The following interview with Thomas A. Edison is taken from the *New York Herald*. Mr. Edison was first asked:

"If you were backed by a ten-million-dollar syndicate, would you undertake to construct a practical working telephone across the Atlantic ocean?"

"It is impossible," he replied.

"There is a Russian who has telephoned under 10 miles of water, and who claims that he can easily telephone across the Atlantic ocean. He is being backed by a syndicate, and it is said that work will shortly be commenced on a submarine telephone cable."

Without a word Mr. Edison picked up a pad of paper and began to figure and talk.

"The difficulty of telephony increases according to the square root of the distance. He telephoned 10 miles under water, did he? Well, he must have had some little trouble. At 10 miles his difficulties would be four. Then they would run up as follows:

At 40 miles.....	16 times as hard
At 80 miles.....	64 times as hard
At 160 miles.....	256 times as hard
At 320 miles.....	1,024 times as hard
At 640 miles.....	4,096 times as hard
At 1,280 miles.....	16,384 times as hard
At 2,560 miles.....	65,536 times as hard

"This is about the distance across the Atlantic ocean. Now, if that Russian can overcome a job 65,000 times as hard as telephoning under 10 miles of water, he may possibly telephone across the Atlantic ocean. It is not a question of battery, but of leakage and the overcoming of resistance and the impossibility of getting rid of the current at the moment the voice ceases. Such a distance, especially such a submarine distance, affords entirely too clumsy a channel for the quick and variable current necessary to a telephone wire. As I said before, it is not a question of battery. Why, with the battery now on the Atlantic cable I can run a fan motor at either end. At the same time the speed of the motor could not be varied quickly enough to make its starting and stopping a matter of a few seconds. Taking these things into consideration, I am afraid the eminent Russian has a heavy job ahead of him.

If I could erect poles three miles high I would undertake to telephone around the earth. As you approach the earth, however, the difficulties increase greatly, and they are of such a nature that I am afraid they can never be overcome—at least, not with present human intelligence."

The Titanic Teuton.

Germany seems to be forging ahead in the race for industrial greatness, if not supremacy. She already stands second among the nations in the value of her exports and imports. Official figures put her exports and imports for 1896 at \$1,926,729,000; England's were \$3,125,820,600, France's \$1,366,167,600, and the United States \$1,544,770,000. But while she thus stands second as a mercantile nation, she is seventh as a naval power. To the danger arising from that fact she seems to be awakening, and it is predicted that energetic action will be taken so that her fleet may surpass that of France. In calling the attention of our State Department to her mercantile progress, our consul at Chemnitz explains it by reference to the form of the empire's coast, its length, its splendid harbors at the mouth of the numerous navigable rivers, its splendidly developed canals and interior harbors, its recent enormous industrial development, due partly to its wonderfully equipped transportation system, and its almost perfect network of railroads, reaching the remotest parts of the empire, carrying freight at cheap rates to the sea.

Electricity as a Bug Killer.

The great Tesla, for he has undisputed right to that title, is constantly startling the world with new discoveries so that to-day his name may be found in the press of the world oftener than that of any potentate or scientist, or prince, and what is better than this his name is always coupled with the praise of his fellowmen.

The Electrical Engineer has this to say of his news about using electricity as a general bug killer:

There can be no doubt as to the invasion of the domain of agriculture by electricity. Last week we noted the results obtained on a farm in Germany, and hardly a week goes by without its news of farmers using the telephone in their operations, experiments at agricultural stations with all kinds of current in stimulating seeds and plants, or the use of power from lighting or trolley circuits in running farm machinery. Indeed, it may be said to be doubtful whether the factory or the farm is to be the new scene of electricity's next triumphs.

It will be remembered that not long ago, Mr. Tesla suggested that part of the energy of powers like that of Niagara might be applied to furnishing nitrogenous elements to the soil, so that better crops could be secured. This may explain why a Mr. S. S. Harvey in the South wrote to him asking if electricity could not be used in a general pervasive way to kill off the bugs that are such a pest in orchards and vineyards. Mr. Tesla, with wonted courtesy, admitted the importance of the subject and said in response to the inquiry: "It is sure that we can destroy these detrimental insects in certain ways by the help of electricity, but to what extent the trees would be affected by the application of these means I do not know, and it could only be settled by a series of experiments. I have some ideas on the subject, and think that an apparatus for experimentation could be produced in a short time. I am resolved to think over the matter in the hope to arrive at some tangible result."

We have no doubt that to some people the idea of a notable electrical inventor devoting his time to devising bug traps and "sure deaths" smacks rather of the grotesque and ridiculous; but in reality Mr. Tesla could not undertake anything of more real and practical value. When one stops to consider how famine, ruin and devastation afflict the human race because of such pests as the locust, phylloxera, army worm and potato bug, it is evident there is work to do of real vital importance to a great many people.

The Manufacture of Bicycles.

In many respects this is one of the most surprising developments that has ever taken place in the manufacturing industry of the United States within the same length of time. When it is remembered that, less than eleven years ago, there were only six firms engaged in the business, with an output of a few thousand cycles, where there are now more than five hundred leading firms, with a product of 1,000,000, and innumerable smaller ones, which will probably add 200,000 more, comment seems hardly necessary. As nearly as can be known more than 3,000,000 bicycles are already in use in the United States and some trade authorities make the number greater than this by nearly a million. Even the smaller estimate shows that nearly 1 person out of 24 of the 70,000,000 of people has already taken to a cycle as a matter of business, amusement, or health. In France, where the number is known because of the collection of a tax, the proportion is thus far only 1 in each 250 of the population. As the mountainous districts of the United States are not generally thickly populated, and the country as a whole is more level than in Europe, it is not difficult to understand the rapid development of the cycle as a method of travel. On the other hand, the fact that in many parts the roads are ill-adapted to the use of cycles during a considerable part of the year would seem to have a discouraging effect upon this development. One result has been the starting of an agitation, widely distributed, for the improvement of roads, a movement which is likely to do much good. The bicycle has also reduced the demand for horses and carriages and for everything that contributes to the furnishing of either. In some cities it has affected the income of tramways and cabs, and has even reduced the volume of short-distance or local travel on railways. The number of riders carrying machines with them has been sufficient to change the customs of the railways, and as a result bicycles are now carried free as passenger's baggage. The last feature has reached such proportions that, during the first two weeks in July, the railways running out of New York City carried 75,000 bicycles for out going passengers, the Erie road alone handling 5,000 in one day for persons leaving home for the national holiday, the Fourth of July.

An Improved Method of Filtration.

There is now in operation at the city of Worms, in this district, as well as at Kiel, Winterthur, Frankenhäusen, Landsberg (near Berlin), and several other places in Germany an improved system of filtration for water, which should have an important interest for the numerous municipalities in the United States that are struggling with the problem of purifying river water on a large scale for household and manufacturing purposes.

The new system is the invention of Director Fisher, for many years past waterworks engineer of the city of Worms, where the use of Rhine water for general purposes presented the same problem that confronts cities like Cincinnati, St. Louis, Cairo, and others which derive their water supply from the often turbid rivers of the Mississippi Valley. The germ, or fundamental idea, upon which the new system is based is the fact that clean, sharp sand, when mixed in due proportion with finely pulverized glass, which may be derived from the waste of glass works, old bottles, etc., forms a porous mass, which, by baking under a high temperature, may be hardened in any desired form. The inventor in this case hit upon the plan of moulding this porous cement into hollow plates or plaques about 40 inches square and 8 inches thick, that is, with walls 3 inches in thickness and about 2 inches of hollow space at the center of the plaque.

In constructing the filtering plant, these plates are set upright in groups or batteries of any number according to the desired size and capacity of the establishment, and are ranged along the lower portion of one or more tanks of hydraulic masonry where they can be covered to a depth of 3 or 4 feet with the water to be filtered. The water is then forced by its own pressure through the porous walls of the plate into the interior hollow space, where it trickles down and is drawn off through pipes, laid at the bottom of the tank, to the reservoir which receives the filtered water. These discharge pipes are rigged with cocks so that each plate and group of plates may be isolated for cleaning or other purposes while the adjacent batteries are in operation. For greater economy of space and tubing, two tiers of plates are set, one above another, in the usual manner, whereby both tiers are served by one set of discharge pipes. The water, in passing through the 3 inch walls of vitrified sand, is filtered as perfectly as by traversing 3 feet of loose sand or gravel in the ordinary sand-filtering process. The plates, being set upright and close to each other, increase from eight to ten fold the filtering surface that may be condensed within any given superficial area, thus securing an important economy of space within frost-proof constructions, and where, as is often the case, land is costly and difficult to obtain.

Nor is this the only, or even the principal, advantage of the new system. Every practical waterworks engineer knows the delays, labor, and expense involved by turning sand filters out of circuit and cleansing them of the mud and detritus which collect so rapidly at the bottom of the tank. With the plaque filter, the cleansing operation is easily and quickly performed by simply reversing the current of water, that is, turning it backward through the discharge pipes into the hollow plates, whence it percolates outward through the porous walls into the tank, dislodging readily the dirt that has collected on the outer surface. This falls to the bottom of the tank in which the plates are submerged, and is drawn off in liquid form, assisted, when the accumulation is large, by means of a hoe or shovel, and followed, when the tank has become emptied, by flushing with a jet of water from a hose, which cleans thoroughly the surface of the plates and washes out the bottom of the tank itself. The discharge cocks are then closed and reversed, water turned again into the tank, and the process of filtration resumed.

Through Sleeping Cars to Toledo.

Commencing February 21, the B. & O. R. R., in connection with the B. & O. S. W. and the C. H. V. & T., will establish a daily line of Pullman Sleeping Cars between Baltimore, Washington, Columbus and Toledo, via Parkersburg and Athens. The west-bound train will leave New York 5.00 P. M., Philadelphia 7.40 P. M., Chester 8.00 P. M., Wilmington 8.19 P. M., Baltimore 10.15 P. M., Washington 11.25 P. M., and arrive Columbus 2.55 and Toledo 6.26 the next afternoon. This is the best service ever offered between Washington, Central Ohio and Michigan, and will doubtless prove to be popular with the public.

Peary's Pole Proposals.

The famous Arctic explorer Peary has a new scheme of reaching the objective point of all Arctic travellers, the North Pole. It involves the expenditure of \$150,000 and the continuation of the work of exploration for ten years, if necessary. He has outlined the plan as follows: The money having been raised, he would purchase a ship, give it a minimum crew, load with concentrated provisions, proceed to Whale Sound, take on board several picked families of Eskimos, with their tents, canoes, dogs, etc.; force a way through Robeson Channel to Sherard Osborne Fjord or further and land people and stores; then send the ship back. As soon as the freezing of the ice in the great fjords of the northwest coast would permit sledge travel, the advancing of supplies northeastward along the coast would be begun by comparatively short stages and with slight loads so that the trips could be quickly made. As soon as the supplies had been advanced the first stage, the party itself would move forward, leaving a cache behind, and as they would be following Eskimo customs and living in snow houses, this could easily be done.

Then the second stage of advance would be taken up, and the work carried on until the departure of the sun. Each of the brilliant winter moons of the polar night would afford opportunities to continue it, so that early spring should find the party and the bulk of supplies at the northern terminus of the North Greenland Archipelago, probably not far from the eighty-fifth parallel, with caches behind it at each prominent headland. From this point, when the proper time came, with picked dogs, the lightest possible equipment, and two of the best of the Eskimos, the dash for the Pole would be attempted. Should the first season be unfavorable as regards ice conditions, it could be devoted to a detailed survey of the archipelago itself and a reconnaissance of the east coast as far south as possible, and the northern journey reserved for the following season or the next.

Each succeeding summer the ship would attempt to establish communication with the party's base, succeeding probably every other year at first, then with increasing experience, every year, and keep up its supply of food, dogs, and Eskimos until the objects of the expedition were accomplished. Should the ship be unsuccessful in the passage of Robeson Channel the first year, the party would land at Hayes Sound, and devote the first year to explorations of that unknown region. Retreat from the colony at Sherard Osborne Fjord always would be practicable across the inland ice to Whale Sound. In Lieutenant Peary's opinion Arctic exploration may be regarded as safe, as is shown by the experience of the last ten years. He says nothing is to be gained by numbers. In fact numbers are a distinct danger, and the frightful catastrophes of previous expeditions in his opinion are directly traceable to that cause. Where three men will get along in safety and comfort six merely would exist on half rations and twelve would die of starvation.

The Costliest of the Earth.

What is the most expensive product of the world. It is charcoal thread (filament de charbon), which is employed for incandescent lamps. It is, for the most part, manufactured at Paris and comes from the hands of an artist who desires his name to remain unknown in order to better protect the secret of manufacture. It is by the gram (15½ grains) that this product is sold at wholesale. In reducing its price to the basis of pounds, it is easily found that the filaments for lamps of 20 candles are worth \$8,000 per pound, and that for lamps of 30 candles they are worth \$12,000 per pound. The former have a diameter of twenty-thousandths of 1 millimeter (1 millimeter=0.0394 inch) and the latter four and one-half thousandths of a millimeter. The filaments for lamps of 3 candles are so light that it would require nearly 1,500,000 of them to weigh a pound. As the length of each of them is 10 centimeters (3.937 inches), their total length would be 187 miles.

Laird and Lee, Publishers have just issued a charming story by Fannie E. Ostrander entitled "When Hearts are True." Price, cloth stamped in gold 50 cents, paper cover in two colors, 25 cents.

Switzerland proposes to make the finest exhibit in her history at the Paris exposition in Nineteen Hundred.

How Long Will the Steel Frames of Tall Buildings Last?

What is occurring or what will occur to the metallic portions of the many tall buildings that are in process of erection at the present time, under great dissimilarity as regards temperature, humidity and other climatic conditions, but of one characteristic sameness, viz., being sealed in solid masonry or other coverings beyond the ken of inspection? Probably no engineering question today is entitled to more serious consideration than this one. In discussing it recently before the American society of mechanical engineers, a member maintained that while inspection of some of the buildings now in progress, as well as some of those lately erected, reveals possibly a slight improvement in the means of preservation adopted over those apparent a short time ago, yet the improvement is a hollow mockery and will bear fruit for repentance before many years have passed. These structures, though more carefully painted than those erected before, with more and heavier coatings of some kind of stuff called paint, do not appear in a single case to have received any attention or consideration as to the condition of the metallic surfaces before applying the protective coating beyond a possible sweep with a dirty broom to get rid of the rough dirt from the workshop yard, and a possible wipe with a piece of sacking to remove the grease due to machining processes. There has been nothing like a washing down of the parts with soda ash or lye water to remove the grease, and then pickling with weak acid to remove the mill scale, and a subsequent washing with lime water to neutralize the acid bath, warming the work before painting it, and taking care to apply the paint only on clear, bright days, when no sweating can occur, or apply the paint in warm paint rooms. It is safe to say that not in a single case out of the many skeleton structures of modern sky scrapers can this be found to have been the procedure. There would seem to be no better possible assurance than all this of trouble ahead for coming generations.

Preparation of Farm Products.

For the treatment of grain products we have, in succession, thrashing, grinding, and baking devices, malting devices, and all those devices which by subsequent treatment and in transforming the malt into fermented and spirituous liquors.

Thrashing.—Four thousand two hundred and sixty patents have been issued in this class. The power cornsheller, the counterbalanced straw shaker, and the automatic band-cutting and grain-feeding attachment for thrashers appear to be the most notable, of which the following are fair representatives: No. 247,338, Gillet, September 20, 1881; No. 250,248, Huber & Strobel, November 29, 1881; No. 327,587, Piatt, October 6, 1885.

Flour milling has been wholly transformed since 1870. (1) by the almost complete substitution of the roller mill for the disk mill or burr: a pioneer and representative is shown in No. 182,250, F. Wegmann, September 12, 1876; (2) by the introduction of the so-called middlings purifier, a flat bolt or shaker in an inclosing case, through which passes an upward draft of air, lifting the bran specks and fuzz from the shaken material: a representative type is seen in No. 164,050, George T. Smith, June 1, 1875; (3) the disastrous flour-dust explosions at Minneapolis in 1877-78 caused the development of the dust collector for withdrawing from the milling machinery and from the interior air of the mill the suspended particles of flour dust, the ignition of which caused these explosions. Thus the air is cleared for use in the delicate operations for producing the finest flour and for respiration, and the mill may be kept closed and comfortable in the cold seasons. The collector at first took the form of a filtering diaphragm, of which a representative is seen in patent No. 213,151 March 11, 1879, to Washburn. Later the dust collector has for its essential principle the vortical or rotatory air current, which, it is claimed, masses and precipitates fine particles impossible to arrest by means of a filter, however fine. Example No. 403,362, Morse, May 14, 1889.

The Chicago Publishers of Hon. W. J. Bryan's book are offering it in exchange for a two-inch electro four times.

It is said that fifteen thousands ex-confederate soldiers will march in the McKinley Inauguration parade. Surely the bloody chasm has closed up tight.

American Agricultural Machinery in Germany.

During the past five years American manufacturers of agricultural machinery and implements have taken the proper means to secure for themselves a large share of the trade of this country. They have sent experienced men to establish agencies, and they send yearly a large number of experts to set up new machines and also to look after the working condition of the old ones. This action on the part of our manufacturers has produced excellent results and inspired confidence among the farming population. The field in this direction, however, is scarcely more than touched and nine-tenths of the country is still without modern agricultural machines and appliances. It is one thing to send elaborate circulars and catalogues to a consul for distribution, and quite another, and by all means the most important, to send a good business man with authority to do business and establish agencies.

Insurance Against Loss of Work.

In a recent communication to the Department of State, Consul Monaghan speaks of the interest felt in Germany in two experiments in the matter of State insurance against loss of work then being made in Switzerland, in the Cantons of Berne and St. Gall, respectively. Mr. Monaghan gives the principal details of the two systems, pointing out that while the Berne system is optional, that of St. Gall is obligatory on the laboring classes.

It may be of interest to know that, so far as the St. Gall system is concerned, its abolition was voted on November 8, 1896. This action was taken at the instance of laborers themselves, who found that a system which insured against loss of work resulted in the promotion of laziness and idleness. In fact a knowledge of the existence of this system of insurance had drawn to St. Gall a considerable number of unemployed from other parts of Switzerland, with the object of obtaining support at the expense of resident laborers. The resolution providing for the abolition of the St. Gall system of State insurance provides also that the same shall take effect on and after June 30, 1897.

Shipment of Oranges.


In order to facilitate the shipment of oranges to the United States and reduce the loss by decay to a minimum, the Mexican Central and the Atchison, Topeka, and Santa Fe railways have entered into an agreement (to last during the orange season) to run through fast freight trains twice a week from the City of Mexico to Kansas City, Chicago, and St. Louis. This train will make Kansas City in about six days and St. Louis and Chicago in about six and a half to seven days—a clear saving in time of nearly forty-eight hours over the time previously made by them. It will not only carry oranges from this city and the adjacent territory below, but also from Ma Borca and Guadalajara, whose output and quality equal that of any district in Mexico.

Persian Rugs for the United States.

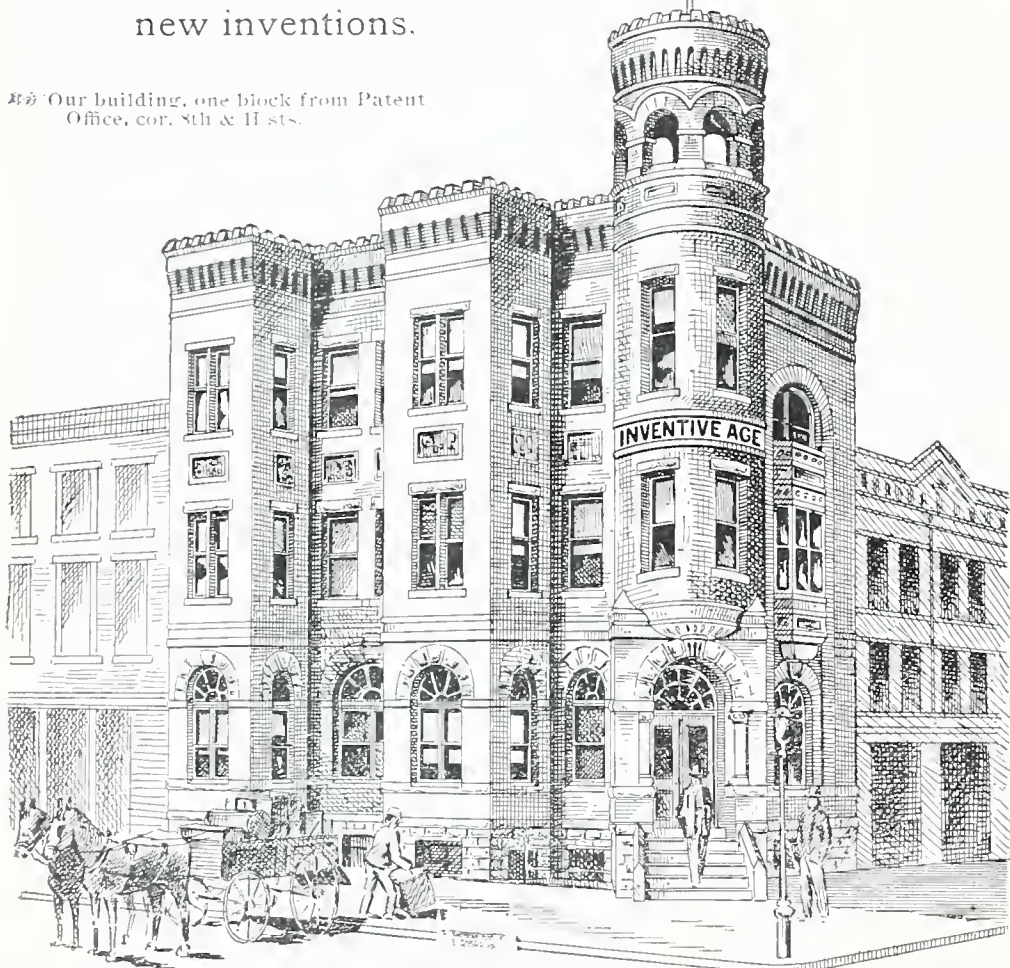
Consul Leo Bergholz, of Erzeroum, in his report to the Department of State upon the trade of that place during the year 1894, writes as follows concerning Persian rugs:

Without doubt, nearly \$2,000,000 worth of rugs pass through here annually. Duty can be paid either in cash or kind. Such rugs as are accepted by the customs in payment of duty or sold at auction and, occasionally, very valuable rugs can be thus purchased at low prices. Most of the American houses dealing in rugs, especially those rugs known under the general head of Persian and Anatolian, buy through agents at Constantinople, and by the time the rugs reach the United States the commissions of these middlemen are added to the cost. It would prove more profitable if such houses would buy direct from the importers in this city.

The work of demolition and construction in connection with the Paris Exposition has begun. The exhibition will open the 15th of April and close November 5th 1900. The site will comprise the public grounds on both sides of the Seine from the Place de la Concorde to a point beyond the Pont d'Iena, embracing the Champ de Mars, the Trocadero Palace and Park (site of the Exposition of 1889) the Esplanade des Invalides, the Quai d'Orsay, the Quai de la Conference, the Cour la Reine, and a large section of the Champs Elysees, including the site of the Palais de l'Industrie, the great building erected for the International Exposition of 1855, the first of the series. No other city in the world contains, in its very center, an equal area available for a great exposition.

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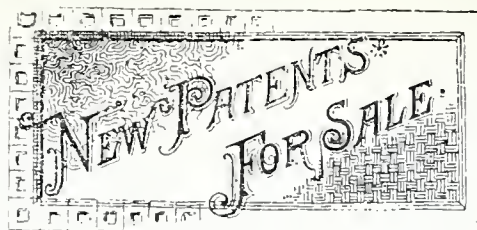
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At this season the mind of the dealer naturally turns to novelties, and as the Ohio Electric Works, of Cleveland are the leaders and headquarters for supplies in this line, a word about this concern and its products will be interesting. In this attractive branch of the science, as in the other branches, the leaders are young men.

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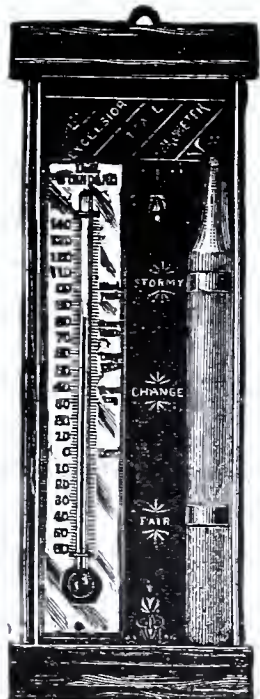
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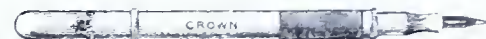
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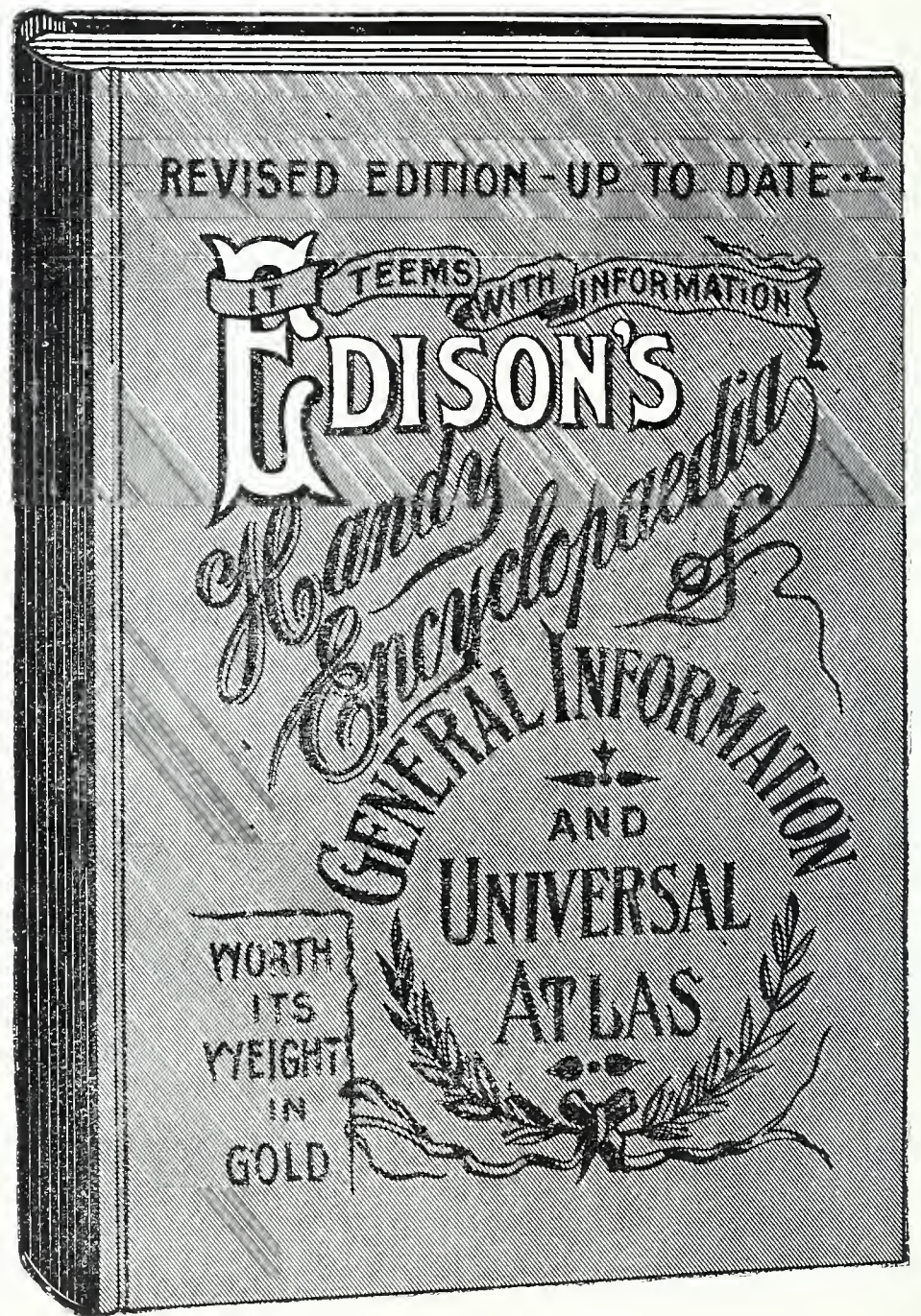
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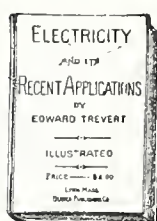
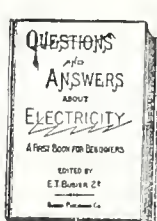
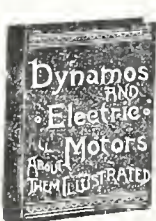
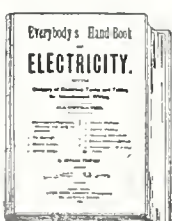
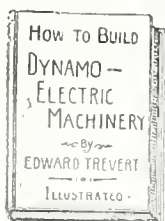
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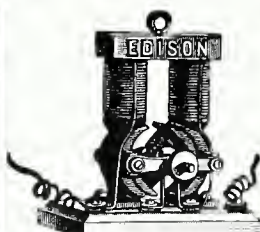
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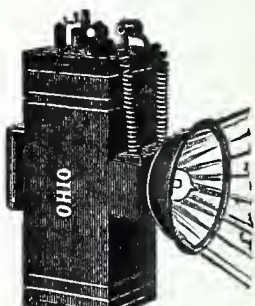
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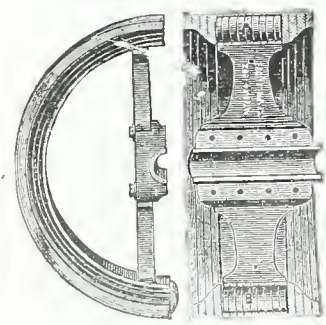
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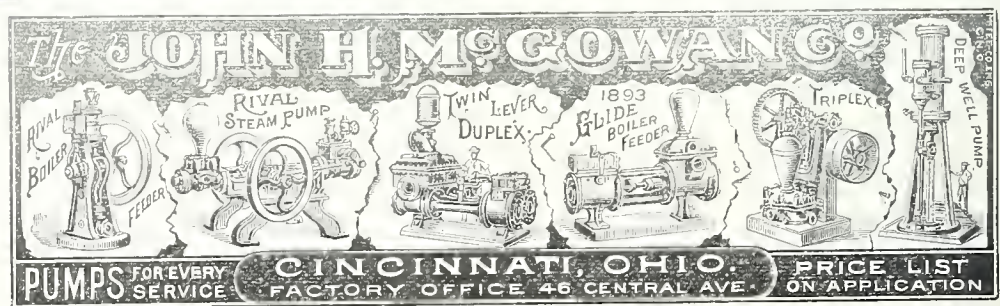
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THE HISTORICAL DEVELOPMENT OF STONE BRIDGES.

(See page 35.)

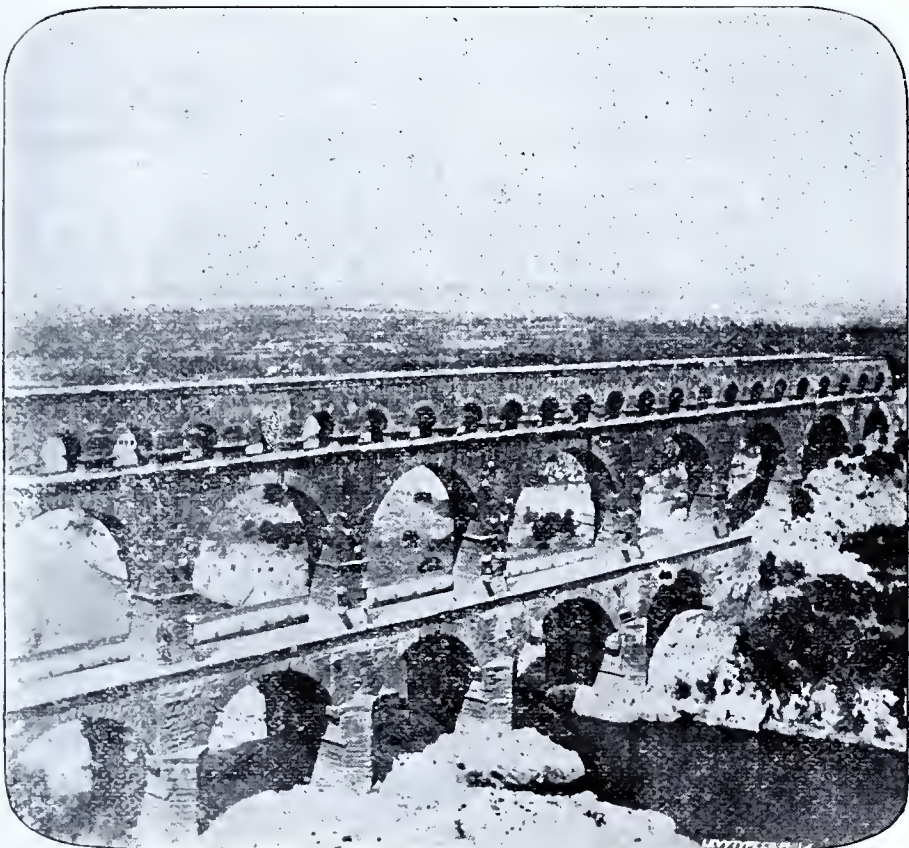


FIG. 6.—PONT DU GARD, AT NISMES.

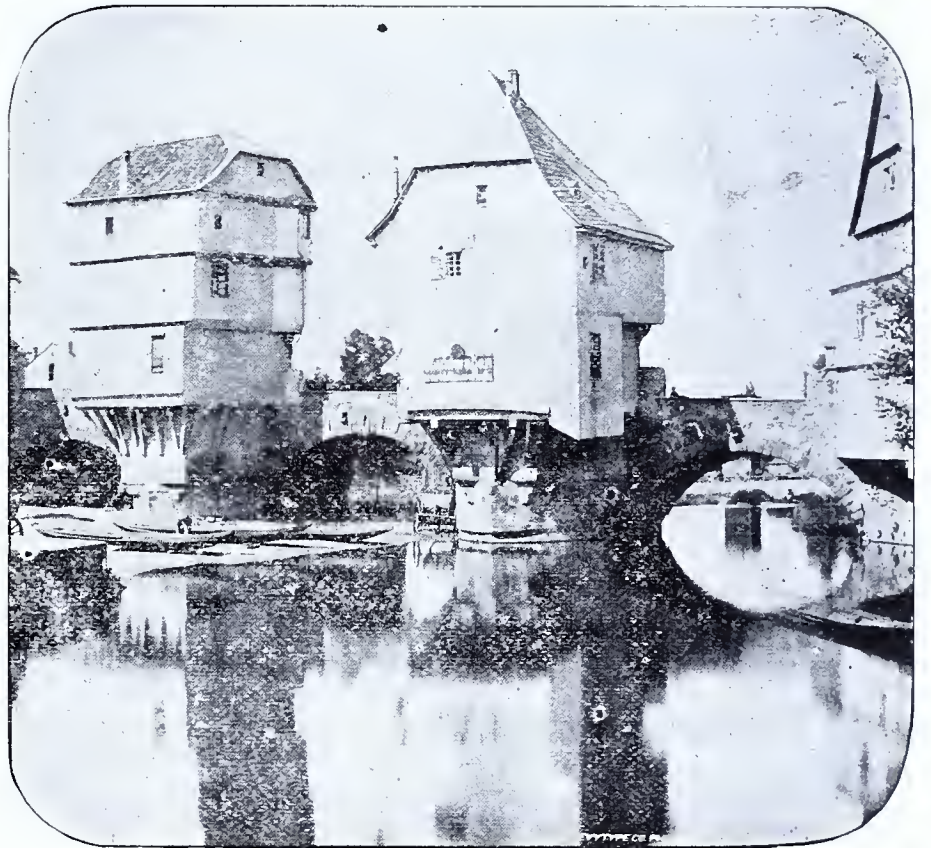


FIG. 10.—ANCIENT BRIDGE AT KREUZNACH.



FIG. 15.—BRIDGE AT ISPAHAN, PERSIA.



FIG. 16.—CHINESE BRIDGE.

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WASHINGTON, D. C., MARCH, 1897.

THE President under the new regime will appoint men to consulates who are especially equipped in commercial matters. Broken down political hacks will not be looked upon with favor for these places.

If an incubator is invented that will hatch out offices as fast as the dear people want them, this office will invest its entire plant in the stock of the incubator company.

THE "Sleepy Eye" inventor who is said to have received millions for his rotary engine will open his eyes when he sees all the nonsense that has been printed about his patent.

PRESIDENT McKinley wants to get acquainted with the men who can invent a flesh that is equal to the spirit. His spirit is alright but he will find that the flesh will get mighty tired before the office seekers give out.

THE interior of the eye has been successfully photographed in two seconds. In this way the progress of disease or recovery can be measured by actual pictures of the retina. That photographer who succeeds in photographing; Mr. McKinley's thoughts will find ready buyers among place hunters, and their name is legion.

THE celebration of the birthday of John Ericson the great inventor took place on March 9th and was participated in by thousands of Swedes and Americans in all colonized parts of the world. When Ericson died he was transported to Sweden from this country on a man of war and was received by the Swedish officials with almost royal honors.

THE "Hide and Seek" game played by the little dynamite cruiser "Vesuvius" in Charleston harbor with Admiral Bunce's fleet of great warships marks a new era in torpedo boats. The dapper little vessel not only weathered the great storm which raged on the trip to Charleston, but she also got through the blockade, like a flash and a vanish.

JUST why the average American inventor runs off after false goods in the shape of fake patent attorneys, and patent sharks, has always been a mystery. It is we suppose on the same principle that some fellow will put a gallon of alcohol into five gallons of water, mix it up with a little sarsaparilla, advertise it widely as the greatest blood remedy on earth, and sell it to the ignorant for one dollar a bottle, when the investment costs only one cent a barrel. Barnum said that the American people as a rule need humbugging as a regular diet in order to be happy.

If the inventors of any other nation on earth were cheated and defrauded as American inventors are by fraudulent concerns who do their business for them, the strong arm of the government would rise in their defense. The patent shark and fake patent attorneys could not thrive in Germany or France because the government itself would interfere to protect the innocent and unsuspecting inventor. The American inventor is the most useful citizen of this country. He has given to the human arm a thousand times more strength, he has given to the human mind uncounted opportunities for the promotion of knowledge. He has created new and multiplied old necessities of life until the whole civilized world has more of comfort and less of want, more of pleasure and less of pain than ever before and he is entitled to honest treatment and the full protection of the Patent Office from the sharks and fakes that are always lying in wait to rob and despoil him. The Patent Office can protect him if it will. The question now is, will the incoming Commissioners of patents give this matter a few moments of his earnest consultation?

THE Consular offices of the United States can be made one of the strongest possible factors in building up and extending our commercial relations with the world. The trouble has always been that those officers have been selected from the class known largely as "politicians out of a job, and some of them selected are entirely unacquainted with the commercial interests and requirements of this country, and the land to which they are accredited. There never was a time in the history of this country when the emergency more demanded the best possible qualifications for the position of consul. We must sell abroad or our trade will languish at home, and we can sell abroad if the right measures are adopted, and the right man selected to put those measures in force. A consul should understand thoroughly the laws of trade, and the necessities of the various markets, and the information they produce should have the widest circulation in the press of this country and as far as practicable in the press abroad, and our manufacturers and commission houses should take advantage of every good suggestion made by our consular officers, and these officers should be instructed not to make any suggestions unless they thoroughly understand what they are about.

GERMAN authorities are still after American meats with microscopes and testers. According to recent reports of the late Consul Warner, who was one of the best officers in the service, at a meeting of the Agricultural Association of the District of Cologne, one speaker, in discussing this question, drew special attention to the fact that beef was examined for maggots in Germany, but not so in America. Since in the former country (Germany) sausages were more adulterated with American beef that was infested with maggots than with potato meal, the law in force in Germany against dishonest competition should also be applied in the case of sausages, which would require the marking of the goods as to whether they were of German or foreign origin and had been officially examined or not. Another speaker remarked that it made an immense difference to the welfare of the German people whether home or foreign meat was used; he therefore deemed it necessary that the origin of the meat used in the preparation of sausages be given. A chemist present, in speaking on the same subject, said that American beef was not so profusely infested with maggots, but that it came to Germany prepared with borax in an astonishing manner. On the exterior of the meat, there was a complete crust of borax and the meat was actually pickled with borax. If sausages contained meat prepared in this way and were offered for sale, it was clearly a fraud in the sale of food stuffs. But this importation had only commenced with them, as well as the discovery of its harmful effects.

THE INVENTIVE AGE started nearly eight years ago as a "Guide Philosopher and Friend" to inventors manufacturers and patent attorneys. Many in-

ducements have been offered us to go into the business of publishing a fake Journal in order to get patent business from innocent inventors, and give them worthless patents for their hard earned money. We have refused, and today not a single inventor in the country can justly say that he has not been treated fairly by the INVENTIVE AGE. The inventors have in a measure appreciated our efforts, but not to the degree that they should have done. Hundreds of inventors have and are now patronizing fake institutions which offer all kinds of inducements to get their business and in return give them patents that would not stand a show in court. They have been warned a hundred times against this unfair and unjust treatment but they go blindly on paying out their money to patent sharks and patent fakes and getting nothing but a patent certificate in return which is worth just as much as the value of the paper it contains and nothing more. Patent attorneys of Washington instead of sustaining the honest and straight forward efforts of the INVENTIVE AGE to be the true friend and guide of the American inventor have not shown us the right spirit, but now that they are face to face with an emergency where patents are put into life by one advertising firm to such a degree and in such a way as to greatly damage the patent business, they begin to realize that the honest efforts of the AGE to steer the American inventor into safe channels ought to have been promptly sustained and thoroughly appreciated. We propose to go on in our old way as the honest and sincere friend of the American inventor. What information they get from this office will be reliable and honest. They know they will get honest treatment in our columns, but if in spite of the advice they get from us they wish the arena of patent Fakedom they must take the consequences. Of course there is no use of crying over spilled milk, but what in the name of common sense is the use of spilling your milk.

THE mayor of Brighton, England, at the great meet of the motor-carriages in that city, made a speech at the banquet given in the evening in which he spoke as follows:

For sixteen long years the lovers of science have waited patiently. During all this long time, we have suffered with galling impatience that knowledge of the infinite superiority of machinery, which it always has had, and always will have, over all kinds of animal power, especially in the matter of traffic. Thank goodness, that day has come at last—a day of deliverance for our roads and highways from the reign of quadrupeds. We are to-day witnessing the dawn of great prosperity for all kinds of mechanical trades. We have been told this week by the highest authority that the safety bicycle trades have now reached to no less than £11,000,000 (\$53,531,500) to £12,000,000 (\$58,398,000) sales annually, while the capital of the companies is no less than £17,000,000 (\$82,730,500). The orders and work for this great industry already received for next year are proving many times greater than ever before. Ten years ago we were considered foolish and too sanguine and these companies were criticised by the always-too-late kind of people—the wise after the event—but in spite of them, the British public have made millions and millions out of the bicycle-company shares, and many a man finds himself in easy circumstances to-day with a little fortune which has arisen from these criticised companies. But if that is so with the cycle—a comparative toy—what shall the motor become? How much employment will it give to even millions of engineers throughout the country? Nor take away, anything from the ordinary road traffic. We have all heard of the great railway mania and excitement; as soon as the people got to understand what machinery meant, which, though it carries a whole nation by motors, has never interfered with animal-drawn cars in the least. Motor traffic, however, has a far greater range. Railways are limited to one road and to one distance from point to point. We, gentlemen, have railways everywhere, and for every kind of transport. We have proved today what can

be done. We started this morning a little before 11, and I am pleased to tell you that every one of the patent cars of the British Motor Syndicate arrived in Brighton quite safely, although many of the drivers had never driven on the road before. We have delivered British farmers' produce in London today for the first time by motor, and even with our 12 miles' limit, we have shown it quite possible to leave London with market goods at 5 in the morning and arrive in Brighton at 9, return again to London by 1 o'clock, and once more return and make a second delivery here in the afternoon by 5 o'clock, returning to London again by 9 o'clock in the evening—four journeys. Indeed, we can go on all night doing the same work, and the motor will never be tired, nor exhausted, nor ill; neither will it go slower because of the work, but at a full speed the whole time. I believe our friend, the coach, has changed horses no less than eight times today on the same road down, and in one single journey thirty-two horses were employed. I ask, is it not a serious thing to waste the time of 37,000,000 people for fear some person may not look where he is going? The tremendous change which cycling has made in our habits was no more anticipated a few years ago than the immense changes now about to take place are anticipated. One thing is certain, they give those who are wise in time an opportunity to once more make such fortunes as our fathers made out of the introduction of machinery in superseding animal power."

A Self Propelling Sled.

A self-propelling sled has just been invented which bids fair to revolutionize the sport of coasting. It will be a special boon to those who live in parts of the country where snow is plentiful but hills are few and far between; for it enables the rider to skim over the level snow of the frozen surface of lake or stream as fast or slow as may be desired, as readily as when coasting down the steepest hill.

This method of propelling sleds is the invention of John Loos, of Brooklyn, N. Y. It is very simple and requires absolutely no previous experience. There is no danger of ugly falls; there is no trick of balance to be learned; all that is necessary is to take a seat on the sled, start the machinery, and go wherever inclination leads.

On an ordinary wooden sled, well toward the front, two upright blocks or posts are firmly fixed, one on each side. Through holes or bearings, as they are called, in the top of these blocks, there runs a strong shaft, each end of which projects a few inches—just far enough to form an axle for a large propelling wheel. The rim of each wheel just touches the ground on a level with the runners.

In the middle of the shaft which supports these two wheels is a pinion or small cog-wheel, which fits into a larger cog-wheel hung upon two uprights called a crank-arbor, which rise from a support beneath the shaft. Two crank-handles project from this crank-arbor. The turning then rapidly causes the driving wheels to revolve, thus propelling the sled.

Ranged around the outer edge of the propelling wheels are a number of small metal teeth, so set that they face slightly forward instead of pointing directly downward, as is usual in such wheels. The advantage of this arrangement is that they first press the snow down and then dig into it, instead of merely throwing the snow backward, as would be the case if the teeth pointed directly downward.

The steering apparatus is as simple as is the method of propulsion. Placed beneath the shaft near each end, and securely fastened to the upright posts, are two levers which terminate at their lower ends in stirrups. Through these stirrups, which work independently, the rider puts his feet, and a downward pressure on either lifts the corresponding driving wheel from the ground. As the opposite wheel remains on the ground it turns the sled in the direction of the wheel thus raised.

A sled fitted with this simple device is at all times under control and can with very little exertion be driven rapidly over the snow, even where it is not trodden into a compact mass. The invention really promises to prove a blessing to the public at large, for the youngster who is the fortunate owner of one will no longer be compelled to chase after sleighs, to the great annoyance of the occupants, in the doubtful hope of getting a ride by "hitching on."

The tensile strength of Russian or Swedish iron is not superior to that of the Tennessee product, nor is their ductility greater when the manipulation from the ores is equal.

The Historical Development of Stone Bridges.

From a lecture delivered by Prof. Geo. F. Swain, President Boston Society of Civil Engineers, before the Association of Engineering Societies, June 17, 1896.

The first stone bridges were simply blocks of stone laid horizontally over an opening. Such bridges are still used for spanning narrow openings, and in some countries for crossing streams of not inconsiderable width. In buildings, this is still the most common mode of spanning an opening. The next step was to corbel out, letting one stone project beyond the one beneath it, and in this manner, spanning larger openings than would be possible with one stone alone. The next step was to cut off the lower projecting corners of these corbelled stones, making a structure in appearance like an arch—a so-called false arch—though in principle it is not in any sense a true arch. These false arches were used by the Egyptians, the Assyrians, the Greeks, and other older nations.

To the Romans is due the special development of the arch, and its application on a larger scale in the construction of viaducts, aqueducts, sewers, buildings and bridges.

The ancient Romans, while they built a large number of bridges, aqueducts, and other works of this nature, met difficulties in the foundations of their bridges over streams. Where they were able to build upon a rock foundation they constructed works which have endured, and by giving considerable width to the piers of their bridges across streams or on soft ground they succeeded in meeting temporarily the difficulties attendant upon a foundation on compressible material; but they were not able to protect themselves sufficiently against the effect of floods, and the excessive width of their piers, by diminishing the waterway, greatly increased the danger of undermining, which has been the cause of the destruction of most of their bridges.

In the arches, as well as in the other masonry structures of the Romans, the stones were laid dry, that is, without bed of mortar. Moreover, each arch was frequently made up of several rings of arch stones not bonded or connected together in any way. Some of these bridges are still in existence and differ comparatively little from the modern structures. Many of these Roman bridges were adorned with statues on the piers and on the approaches.

The most important of the Roman bridges, however, were in connection with the aqueducts which supplied the cities with water.

In addition to the aqueducts, which supplied Rome, the Romans built other aqueducts, among which may be specially mentioned that at Nismes, in Southern France. The noted Pont du Gard (Fig. 6.) was built in the aqueduct supplying Nismes, and is one of the earliest aqueducts constructed by the Romans outside of Italy. It is supposed to have been built in the time of Augustus. This aqueduct had three tiers of arches, but only one channel at the top. The length of this bridge at the top of the second tier is 885 feet, and its maximum height over the river Gardon is about 160 feet. The arches of the two lower tiers are semi-circular. The large arch, through which the river passes, is 80 feet 5 inches in span; the three on the right side of this are 63 feet, and the smaller ones 51 feet; the arches of the upper tiers are all equal in span, 15 feet 9 inches. The thickness from face to face is at the first story 20 feet 9 inches, at the second story 15 feet, at the third 11 feet 9 inches. The depth of the keystone of the large arch is 5 feet 3 inches; that of the others 5 feet, while those of the upper story are 2 feet 7 inches. The lower arches are formed of four separate rings, the next above of three, and the upper of one. The arches thus consisted of separate narrow arches side by side, not bonded or connected together. The structure is constructed of freestone with rubble filling in the piers and spandrels. The stones were laid without cement, and projecting stones were left to support the centers. The dimensions of the channel are 4 feet wide and 4 feet 9 inches high. Above the small arches

of the upper tier cement was used in the masonry about the channel. This cement has come as hard as the stone itself, forming one permeable mass, and preventing any filtration. This beautiful structure was partly destroyed at the end, and the beginning of the fifth century, by the barbarians who besieged Nismes. In 1743 it was repaired and the piers prolonged to carry a new bridge. The entire length of the aqueduct of which this bridge forms a part is over 25½ miles. The fall given to the water along the entire length is 0.04 feet per 100 feet, and is uniform throughout. This great work of engineering will compare favorably with any of modern times. It shows that the Romans understood thoroughly the art of levelling, and much more of the science of hydraulics than we generally credit them with. Considering the state of physical science at that time, the skill and care displayed in this and other similar works is little short of the marvelous.

After the fall of the Western Empire there was little bridge building in Europe until the twelfth century, when the increase of travel, together with the rapid development of cities and of trade, rendered imperative better facilities for crossing streams.

In France a religious association known as "Brothers of the Bridge" was founded by Benedictine monks, and flourished especially during the twelfth and thirteenth centuries.

By this order the building of bridges was assumed as an act of piety. They established houses for accommodation of travelers at the stream crossings, acquiring means for constructing bridges, and in some cases superintending their erection. One of the earliest bridges built by this organization was at Durance, but due consideration not having been given to the waterway, it was soon demolished by floods.

Of all these bridges built between the twelfth and sixteenth centuries, it may be said that it is remarkable that they stood as well as they did. They were cheaply constructed, and very narrow, seldom 20 feet in width, generally not over 13 to 16 feet, and sometimes but 6 or 7; the piers were very thick, and the spandrels either perforated or filled with earth.

Among bridges of the middle ages we present an illustration of an old bridge at Kreuznach, with quaint and ungraceful buildings erected over the piers.

The largest stone arch span constructed up to the present day was found in a bridge built in 1377 at Trezzo, which was destroyed in a local war in 1416. It was a segmental arch, with a span of 237 feet, and a rise of 68 feet.

Fig. 15 shows the bridge of Allah-Verdi-Khan, at Ispahan, which has thirty-three arches of about 18 feet span, and three smaller arches at the end, all pointed, and of true Persian character.

Fig. 16 shows a picturesque bridge in China, which, in its steep approaches, reminds us of some of the mediaeval bridges of Europe. The dates of these bridges are uncertain.

In America there are a few large stone bridges. This is but natural in a new country. Not strange is it, either, that most of our large stone bridges are on works of water supply rather than on railroads. Our country has been built up by the railroads, which have penetrated in advance of civilization into new regions, and have been too poor at the beginning to build such costly structures—unlike the railroads of Europe, which were built though already rich and populous districts.

Among the aqueducts in this country is the Cabin John Bridge, over the creek of the same name, in the aqueduct supplying Washington. This was built by Gen. Meigs in 1866, and has one segmental span of 220 feet, with a rise of 57 feet 3 inches, being the largest stone arch span in existence, and only exceeded in the world's history in the case of the bridge at Trezzo, already mentioned. This bridge is but 20 feet wide.

The funds for the construction of this beautiful and graceful piece of engineering skill were furnished by the United States Government.

Stone.

The Greatest Telescope.

It is not known who first invented the telescope. The discoverer has not yet been found. Many philosophers of olden time seemed to have had a knowledge of its principles—but no facts have come down to us along with their writings, to prove this.

It is said that Roger Bacon who lived in the 13th century, showed in his works that he had a theoretical idea of both the telescope and microscope, but the practical discovery of the instrument was undoubtedly made in Holland about 1608, and considerable numbers of the instruments found their way throughout Europe very rapidly.

Galileo constructed a telescope after he had heard that others had done so, and discovered the satellites of Jupiter with it in 1610. He made so many improvements from time to time that the original discoverer was overshadowed.

Kepler about the middle of the 17th century made

Birmingham, England, and Feil Brothers, of Paris, makers of optical disks of more than 20 inches in diameter, owe their success to the information handed down to them by the makers of this Struve object glass, the manufacturer Guinand, having found out a method of avoiding the striae which always appear in the glass after being cast.

The object glass of the modern telescope consists of two lenses fitted together, one of crown the other of flint glass. They must of course be flawless and the labor necessary to polish and perfectly shape a large lens is almost inconceivable. When the 26 inch in the equatorial telescope now in the Washington Observatory was made by Alvan Clark it was thought the limit was reached, but the Vienna telescope with 27 inch aperture soon followed. In a few years afterward, Sir Howard Grubb constructed another equatorial telescope for the Greenwich Observatory with an aperture of 28 inches.

The Clarks then went to work on a glass for the Russian Government to be placed in an equatorial for the Observatory at Pulkowa. This has an aperture of 30 inches and was finished in 1885.

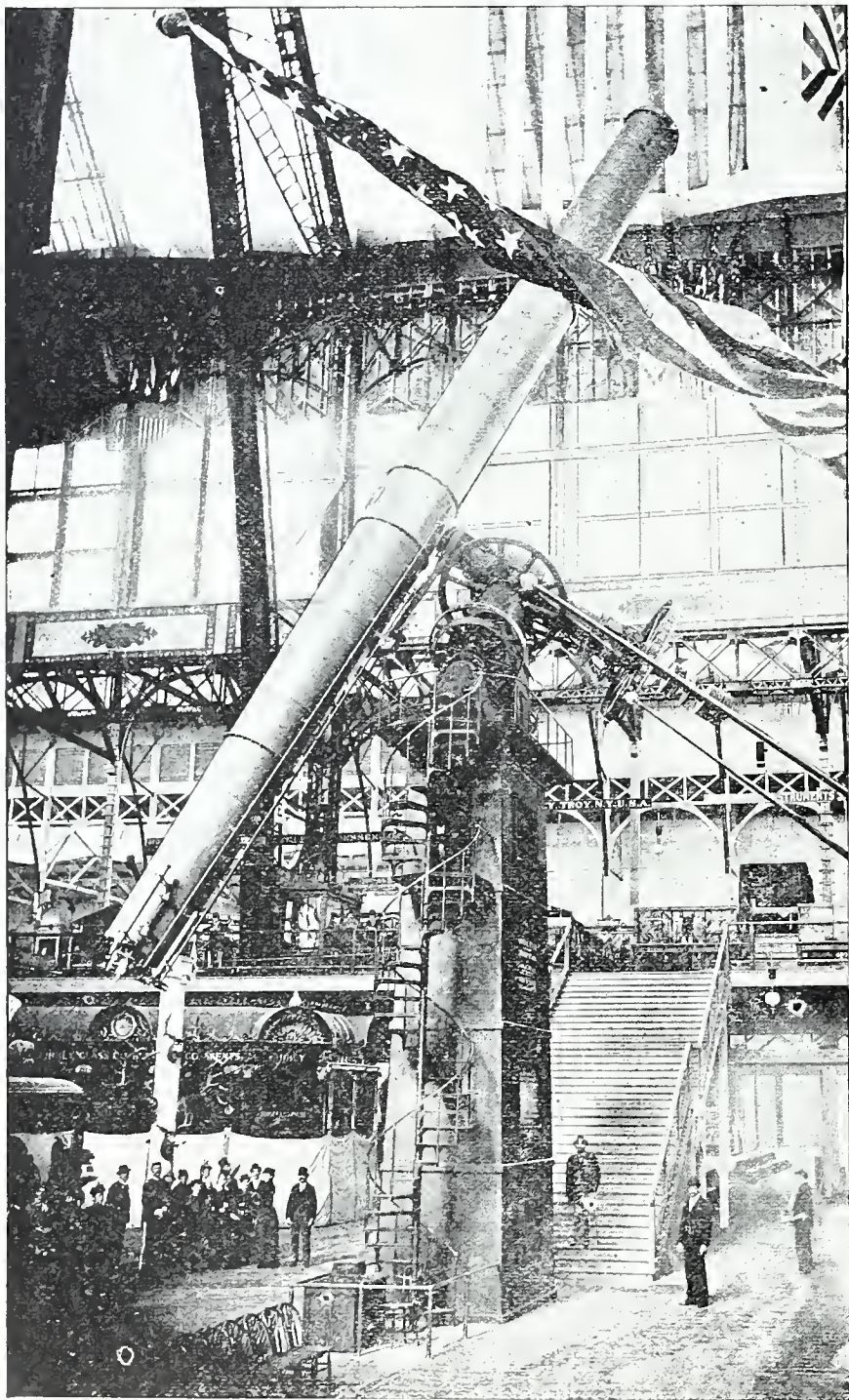
After finishing off this enormous lens the Clarks

World's Fair at Chicago in 1893. It seems that the limit of aperture has not yet been reached. Will the 20th century effect such rapid strides as the 19th?

Pay and Pie.

Mr. Fred Woodrow in the *Age of Steel* makes some pertinent suggestions on a subject which ought to be treated in our public press more frequently. In the article he says:

The stomach and the pocket, as a rule, are in close touch, and when one is empty, the other is generally on a vacation. A man with money is a man with a meal. He has no need of a soup ticket, or a section of his neighbor's pie. Means make meat, and the want of them, a charitable sandwich, or a thin herring. So it comes about that where pay or wages are below the living point, the standard of living is low. Where, however, they are level with, or above, the water-mark, we find a democracy of all things eligible to gastronomic honors. It is for this reason that the American standard of living is what it is. The dinner pail of the American workman has no rival on the globe. Its bill of fare would have made Lazarus fat and Dives discontented. All the world contributes to its contents. It is a cosmopolitan commissary, with ham and eggs and peaches and pie, it has a standing familiarity. Sardines from France leave their heads and tails in our brickyards; prunes from Turkey in our coal mines; salmon from Oregon in shanties, while section-hands and quarrymen, hod-carriers and perigrinating peddlers, white gardeners and colored coachmen, and even tramps and bums, eat and drink as their forefathers never did. This is not saying that we have not too many human scare-crows, or good sound teeth with nothing to do, but with all the dark fringes of poverty on the national fabric and its silent tragedies in our streets and garrets, the fact remains practically unimpaired that, as a general thing, we live in a democracy of pie. Nor is this standard of living limited to pudding, beef or pastry. In general comfort we are an exception to many countries. We live in better houses and wear better clothes, and with thrift and care have opportunities not to be found elsewhere. Exceptions, of course, are in abundance. We have hovels in which the rat and the man both find a lodging; streets dark and foul, and whole districts where poverty and squalor wallow in wretched companionship. The very forces, however, that are working to the betterment of human conditions in other lines will crack up this crust of wretchedness and sanitary iniquity. The standard of living is rising. It has put carpet on the floor of the cottage, pictures on its walls, nickel-plate on its stoves, books on the shelf, and the newspaper on the door step. It has paved the streets and plotted the parks, and brought the produce of the hemisphere to every man's door. These hydraulics must continue or collapse. Men may be idle and wages may recede, rents may be unpaid and potatoes be scarce, but just as sure as Adam walked out of Eden and never returned, we can never retrograde to the diet, the dry goods or the architecture of the ancient Briton or the modern Hottentot. We may recede in those virtues that are the bone and tissue of personal worth and national greatness, and may fail in those robust and antique qualities that are to the stability of civilization what the granite ribs of Ben Nevis are to its crown of crags. We may go the way of Egypt and Persia, Greece and Rome, into national decadence and the sepulchres of history, but be that as it may, we find ourselves at the close of the Nineteenth Century face to face with conditions that insist on the common ratio of a higher standard of living and the purchasing power of wages. The living wage is a necessity, and its adjustment with other conditions one of our coming problems. We draw the line between extravagance and sufficiency. If a man lives at a \$20 rate on a \$10 salary he has to accept the consequences. If he must have a piano, a buggy and a house with a stone front, he must get it by thrift in what he earns. If some men in this world have more than they can spend, it is no reason why another man should spend more than he earns. Too many are biting off more than they pay for, and not a little of industrial discontent is due to this popular vice. The man who spends more than he earns in summer, is, in nine cases out of ten, the indignant gentleman who blames society and capital for his toes being cold in winter and his overcoat at the pawnshop. High wages to such a man are but a warm stove plate to a firkin of butter. To the rest, however, who are honest in their endeavors to make the best of what they earn, and to live up to the standard of living to which, as men and citizens, they are entitled, the purchasing power of their wages must be equal to their needs. We have reached the stream over which we must throw a plank, or take a bath.



a telescope on a much larger scale than Galileo's instrument, but at the expense of definition.

Newton was the first to construct a reflecting telescope. This was in 1666.

The first person who succeeded in making achromatic refracting telescopes was Chester Moor Hall in 1733. His glass was 2½ inches wide. This was followed by the Dollands who invented the refracting telescope embodying the principles of the refractor of the present day.

In the year 1774 William Herschel began his experiments which resulted in the construction of instruments by means of which his brilliant astronomical discoveries were made. In those days the large telescopes were reflectors. Disks of glass could not be cast which were perfect enough to give an aperture greater than 3½ inches. It was not until 1823 that a reflector could be constructed with a glass of 9 inches. This was the Dorpat refractor and with this the discoveries of Wm. Struve were made.

At the present time Messrs. Chance Brothers of

rested for a few months and were loath to undertake a contract for a larger lens, but were finally prevailed upon to begin work upon the great 36 inch lens for the Lick Observatory. Many were the predictions that it could not be made: in fact it is said one or two firms failed because of repeated disasters in casting these disks and yet with the ample funds of the Lick estate at their command the Clarks toiled on and the world has seen the result in that wonderful instrument on Mount Hamilton, California, erected in 1888. In the hands of Prof. Holden this great glass has given to the science of astronomy a mighty impetus.

And now as a crowning evidence of the pluck and skill of American inventors, a fitting birthday present for the nineteenth century to give to the twentieth, comes the greatest of all telescopes, the 40 inch refractor erected at the Yerkes Observatory at Geneva Lake, Wis. This gigantic instrument is mounted and swung with all the equipment of accessory known to modern astronomical science, and mechanical engineering.

Our cut shows the great tube as exhibited at the

A Market For American Oak in France.

There exists in the northern part of France a demand for oak lumber, which is largely supplied from the forests of Hungary, and my attention has been called to the fact by dealers in oak lumber that American forests supply a quality of oak which, though said to be slightly inferior to Hungarian oak, could, nevertheless, in a measure, take the place of it. I am informed that, should American dealers in this lumber take the necessary trouble to send agents here, they could, without doubt, secure some of this business.

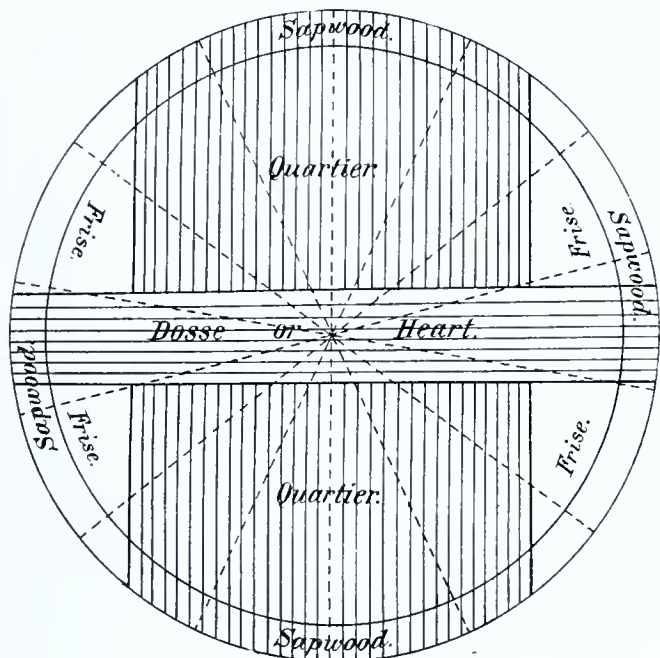
An important firm informs me that they purchase \$400,000 worth of oak lumber per year, and that, could they form the proper connections, in the United States, they would undoubtedly purchase the entire amount there. They have had small lots of American-grown oak, and state that it has proved satisfactory.

Much of this oak lumber is used for cooperage and flooring. The demand is for planks from 6 to 36 feet in length and from 7 to 16 inches in width.

The above diagram is intended to show how oak logs should be sawn to meet requirements here.

The planks sawn from the heart of the tree should be from 9 to 36 feet in length, the average width being 9 inches and the thickness from 1 to 2 1/4 inches.

Planks sawn at right angles with those sawn from the heart, called here the "quartier," should



be from 6 to 36 feet in length, from 1 to 2 inches thick, and of an average width of 9 inches.

The planks cut from the corners of the log, between the "dasse" (heart of the tree) and "quartier" (planks cut at right angles with the dasse), are used for flooring. The length should be about 6 feet, thickness 1 inch, and width about 7 inches.

To meet the requirements of the trade, all planks should be clear and free from sapwood, bark, etc. There should be no knots or wormholes in first-quality lumber. Sound knots are accepted in second quality.

Red oak lumber is not wanted on account of the wormholes, it not being salable even as second quality.

Prices should always be quoted c. i. f. Havre or Dunkirk.

American dealers who may be interested in this subject may address me, and I will take pains to place them in communication with dealers here.

STEPHEN H. ANGELL,
Consul.

Free Stop-over at Washington.

On all through tickets between the east, west, north and south, reading via Baltimore & Ohio Railroad, a stop-over at Washington can be secured, without extra charge for railroad fare, by depositing the ticket, upon arrival at Washington, with the B. & O. station ticket agent at that point. Washington is always attractive to visitors, and particularly so while Congress is in session. This arrangement for stop-over privilege will doubtless be appreciated by the public, and will bring to the National Capital many travelers to view its superb public buildings, monuments, museums and thoroughfares.

Equal parts of litharge and red lead form, when mixed with a sufficient quantity of glycerin to form a paste, a substance which is highly recommended for repairing cracks in iron. It resists the action of water, alkalis and fire.

New Method of Mail Collection.

For some time past plans for a more general free delivery of mail have been before the Post-office Department.

When Hon. John Wanamaker was Postmaster General he recognized the necessity of a more adequate service, and appointed a commission of postal experts to formulate and execute plans for municipal free delivery.

Postmaster General Wilson issued an order on January 23, 1896, in which, after reviewing the free delivery situation, he directed that all cities and towns having free delivery, the postal system be extended to include house-to-house collection. The service at the outset included twenty-five cities. It has been the policy of the Postoffice Department to make an extension wherever practicable.

In connection with the house-to-house collection, carriers were authorized in December last to sell stamps and collect unstamped letters when accompanied by an amount of money sufficient to pay the postage.

With the new letter-box, to mail a letter it is necessary to unlock the box, deposit the letter and lock the box.

Notice to the carrier that mail is there for collection is given by a carrier's signal that rises automatically when a letter or package is deposited and remains in view until the contents are taken out by the carrier.

Mail is delivered by the carrier through the delivery compartments of the same box. The sale of postage stamps is effected through this box by means of an official stamp-selling envelope owned by the government, one of which will be given free of cost to each purchaser of a letter-box.

The stamp-selling envelope provides for the sale of stamps in the following denominations and amounts: 5 one-cent stamps, 25 one-cent stamps, 5 two-cent stamps, 25 two-cent stamps, 2 five-cent stamps.

The box owner simply places the correct amount of money in the envelope, marks a cross opposite, the lot of stamps he desires, closes the envelope and deposits in the collection compartment of the box. The carrier takes the envelope, and on his next trip deposits a similar envelope containing the stamps called for.

Unstamped and special delivery letters will be collected and forwarded by placing the amount required for postage in the envelope, together with order for stamps.

Householders must purchase boxes to secure the advantages offered.

The Bazin Roller Boat.

Last year, at St. Denis on the Seine, in France, there was launched a novel craft, which, if it realize the expectations of its inventor, will have greater speed in proportion to its driving power than any other vessel now afloat. This boat, which bears the name of its designer, M. Ernest Bazin, a French marine engineer, consists of a platform above the surface of the water, supported on six upright lenticular wheels, which are immersed to about one-third of their diameter and which revolve as they move over and through the water. The propelling power is communicated to a three-bladed screw at the end of a long shaft by an engine on the platform. There are special engines for turning the wheels, one for each pair, for in order to secure the greatest efficiency, these rollers must revolve at a speed proportional to that with which the boat advances. By this contrivance, rolling friction takes the place of the usual sliding friction between the water and the outer skin of a vessel, and it is expected that the resistance to the forward movement of the boat will thus be reduced to a minimum. M. Bazin, it appears, has not arrived at his conclusions hastily, for he has been working at the idea of a roller boat for twelve years or more.—*Public Opinion*.

An improvement in watering carts is the invention of a Minnesota lady who has devised a machine for watering growing crops and pastures and also for fighting prairie fires. It is designed especially for corn, but is applicable to all crops planted in rows of hills. It consists of two sets of truck wheels (narrow enough to pass between the rows of corn), connected by planks upon which is mounted the water tank, which may be elevated by jackscrews to any height required by the corn. A sprinkler attached to the rear of the tank sprinkles three rows at once, and the side sprinklers water two rows each.

Electricity Without Engines.

Man's command over the forces of nature increases faster than his control over himself. Every day brings news of discovery and improvement. The winds and the waters are harnessed to do his bidding, it is believed that the sun itself will lend its light and heat to drive his machinery, the long-awaited engine that shall convert the vast and inexhaustible power of the sea dynamic force ashore is said to have been built, the electric currents that have hitherto served only to sway the magnetic needle and that show themselves now and a dance of northern lights or serve as again in interferences in telegraphy are being watched and tested in the hope that they, too, can be switched into batteries or storage of some sort. Tesla promises light without wires and now a new way to create electricity is announced by Willard E. Case. This is to derive the fluid from carbon, without heat. The present method involves a waste of 75 per cent in energy, and the usual dynamo demands about five pounds of coal for each horse power, every hour. Mr. Case says that with his new method a fifth of a pound of coal suffices for the same purpose. His experiment before the New York Electrical society seemed to confirm his statements. He used plates of tin and platinum as electrodes and the coal was oxidized by chemicals. The thermometer indicated no heat, so that the chemical energy appeared to have been converted absolutely into electricity. He performed other experiments even more wonderful, since he induced electricity enough to ring a bell by the mere process of oxidizing a vial of beef blood. It is not likely that Mr. Case's discovery will be of immediate use, for, so far as platinum is concerned, it is too expensive to become a substitute for any of the usual materials and it is understood that the other chemicals were likewise costly; but the fact that potential energy may be changed in this easy fashion to electrical or active energy is significant and it will undoubtedly have its effects on the industries and arts of the future.—*Brooklyn Eagle*.

Power of Water.

In the Fresno, Cal., water-power plant, where Pelton wheels are used under a head of 1,411 ft., the following interesting phenomena are described by Mark A. Replogle: "A sudden stopping in the water-flow, on one occasion, raised the hand on the pressure gauge to the astounding height of 1,000 lbs. per square inch, and the pressure returned to nearly a like distance below 610, and kept up reverberating for over 30 seconds. The great pipe writhed like a huge serpent, and the commotion in the interior sounded like the firing of distant cannon. The great strength and elasticity of the steel are the only safeguards in such sudden changes of flow. The water is applied to the Pelton wheels by the use of deflecting nozzles. A stream of water from one of these will bore a hole through a 3-in. plank in a few minutes; it will tear a hole through a 3/8-in. piece of steel in a few days; concrete melts before it like sugar.

Artificial Diamonds at Niagara Falls.

Dr. Johnstone, a Washington scientist, is about to erect a laboratory at Niagara Falls for the manufacture of diamonds by crystallizing pure mineral carbon with an electrical current of enormous power derived from the Niagara electric works. The inventor is very sanguine, and declares that by this process he will eventually produce diamonds surpassing the Koh-i-noor in size, color, and purity, only a few days being required to turn carbon into diamonds.

The Origin of Natural Gas.

An experiment of some importance is reported, made with a view to determine, if possible, the origin of natural gas, irrespective of theories hitherto prevalent. For this purpose dried seaweed was steeped in water which had been freed from air, and on the third day gas appeared, continuing to be evolved in diminishing quantities until the tenth day, when 803 cubic centimeters had been collected. The evolution had evidently ceased, though after standing two years and a half, thirty cubic centimeters more of gas collected in the apparatus; the second gas differed from the first, consisting, it is recorded, almost entirely of methane—the chief constituent of natural gas—from which it is inferred that this slow secondary decomposition of vegetable matter may have some relation to the origin of natural gas.—*Boston Journal of Commerce*.

American Bicycles in Italy.

The only obstacle at present worthy of notice to the successful introduction of the American bicycle is its high cost. Were it not for the fact that it is the highest-priced machine in the market, there is no question but that it would be universally adopted to the exclusion of all others. Then, too, American houses often retard rather than advance their chances for extending the trade by an injudicious selection of their Italian agents, in the choice of whom the utmost care should be exercised, in order to avoid selecting men of incompetency and no knowledge of commercial matters and whose financial standing in the community in which they live is not satisfactory.

As yet, in Italy, women have not taken very enthusiastically to bicycling, but the interest taken by them in this district is daily increasing, especially those who aspire to a position in the fashionable world, as it seems to be considered quite the proper thing and in excellent "form" for a woman of a "smart set" to be an expert bicyclist. With Italian women in general, there seems to be a strong, deep-seated, traditional prejudice against all forms of athletic sports, and it will be some time before that prejudice can be done away with; but it is undoubtedly a fact that the bicycle has been a most active agent in encouraging them to abandon such prejudices and to take up athletic sports in the interests of their physical well-being as well as for their diversion. It may be stated approximately that at present, in Italy, only 5 per cent of the people using bicycles are women.

For the Italian trade three different classes of bicycles should be made—first, a machine very highly finished, with nicked and gilded mountings, something which should be very showy and which would retail for not more than 600 francs (\$115.80); second, a good machine, less elaborate, but well finished, that would sell for not more than 450 francs (\$86.85); third, a simple but strong machine, what might be called a popular type, that could be purchased for 300 francs (\$56.90). These prices, of course, being the retail cost in Italy.

The Jungfrau Railway.

As doubts are frequently expressed about the realization of the Jungfrau railway project, we may mention that the scientific committee of this undertaking had a meeting last December, in which progress was reported and discussed. The operations on the first section, which reaches an altitude of 7,500ft., have not been pushed forward as much as was expected, owing to the inclemency of the weather. The men had experienced no trouble from working at this altitude. It will be remembered that general competition was invited. In reply, 48 projects have been submitted, referring to different branches of the problems to be met with, and 16 of these have been awarded premiums amounting altogether to 30,000 francs. The competitors were mostly Swiss or Germans; but we notice among the successful applicants the names of M. Halder, of Pittsburg, who offered a scheme for the electrical arrangements, and of Joseph Bernays, of London, who submitted plans for the lift.

Paper Clothing.

In the coming rivalry with the Japanese in the fields of commerce, Europeans may find it necessary to get into the way of wearing paper clothing, if the fight is to be waged on equal terms, or if rigid economy in wearing apparel should form an element in the strife for trade. It is said that the Japanese manufacture and wear most serviceable underclothing of their finely crisp or grained paper. After being cut to the proper pattern, the sections were sewed together and hemmed, and where they are to receive button holes the parts are fortified with linen or calico. The stuff is said to be strong and flexible, bearing quite a stiff pull before it tears; and it does not interfere with the transpiration of the body any more than garments made of linen or cotton fabrics. It may safely be inferred, although nothing is said about it, that clothing made of such material is never consigned to the washing-tub.

Cotton was supposed to be king in former days; more recently corn has held the highest position; but now it is a question whether iron is not entitled to the supremacy.

A machine which is expected to revolutionize the lumber business is in operation in one of the Eastern States. This machine cuts lumber without any waste, and there is no sawdust whatever.

Our Latest Torpedo Flyer.

The Bristol firm that has just turned out torpedo boat No. 6, and which the Secretary of the Navy has accepted with perhaps commendable, but certainly feverish, haste, has certainly shown that our American builders only lack opportunity to come up to the full standard of speed that has been set by other nations in the construction of similar craft. On Wednesday last the craft in question, in a twelve mile course, and covering a total of sixty miles, attained a speed but a fraction under twenty-nine knots an hour. She was designed to average only twenty-seven and a half knots, so that the very creditable increase is extremely gratifying to the navy department, creditable to the builders, and pleasing to the nation.

It is to be hoped that this success, which is sure to be followed by others, much more remarkable, in the not distant future, when the construction is completed of torpedo boats of thirty knots, two of which are now building by the Bath Iron Works and one by the Union Iron Works, will induce the government to supply this nation with a large flotilla of these valuable craft, one of which has just out-manoeuvred the entire fleet at Charleston, and ran the blockade, in a fog, despite the most vigilant alertness of all the officers of the blockading squadron.

Mr. Moody's Opinion.

I never said what is charged against me, that if you throw the story of John out of the Bible you throw God out of it. What I did say was that if you deny the story of Jonah and the whale you must deny the resurrection of Jesus Christ, because he said: "As Jonah was three days and three nights in the whale's belly, so shall the Son of Man be three days and three nights in the heart of the earth." If you make the one to be a parable or a myth, I don't see how you can claim anything more for the other. And I believe the great and overwhelming majority of the common people with their English Bible in their hands will stand with me in that judgment. But my critics keep talking about the scholars, the great men who make a business of criticising the Bible, and who think differently from me. Well, all the scholars don't think differently by any means. There are lots of scholars on my side, or rather on the side of the old Bible. I suppose that Dr. Philip Schaff would be classed as a scholar, but he stands by the story of Jonah on the same ground that I do. So does Professor Townsend who has been connected with the Boston University for twenty-five years, and so does President Harper, of the Chicago University, who said at Northfield, in the presence of five or six hundred students: "I believe that the whale swallowed Jonah." Hundreds of the best and ablest preachers in this country and great Britain stand on this question just where our fathers stood, and its present agitation is bringing their testimony to the front in a way that is strengthening faith in the Word of God.

Motor Cars.

□ The London Times, in an editorial, predicts that enough has been done to show that motor cars, either in their present form or with such improvements as experience may suggest or ingenuity devise, are destined to play a great part in the future transportation of people and merchandise. As far as extensive use is concerned, the question is, of course, mainly one of economy, and its practical decision will turn upon the relative expenses of fuel to fodder or upon the rate of the deterioration of a machine with that of an animal. It is highly probable that motor cars will be brought largely into use before there has been time or opportunity to train an adequate number of drivers; if so, we must be prepared for a considerable catalogue of collisions and other accidents, many of which, from the very nature of the agencies concerned in producing them, are likely to be of a very serious character. With every form of petroleum motor, the dangers of fire are superadded to those of collision, and it would be a proper precaution to require that great pains should be taken in all such vehicles to protect the reservoir from injury.

A water-tube jail is one of the latest achievements of Yankee ingenuity. It is no longer necessary to make the prison bars so heavy and so hard that cutting through them becomes very difficult; but, instead, they are made simply of pipes, forming part of a high-pressure water system. Should any of these pipes be severed, the water would escape and quickly give warning of the break.

A Possibly Great Discovery.

Among the great benefactors of mankind are the discoverers of new and important uses for waste material or things of little value but abundant in quantity. Not many years ago rags and old paper were the only raw material of the paper mill. At length somebody found that paper could be made from straw, and this great discovery was soon followed by a much greater, and the forest now furnishes the pulp from which most of the paper in use is manufactured. And the daily consumption of paper is greater now by more than 200-fold than it was a hundred years ago. The time when cotton seed was thrown away—when the planters did not even know that it would enrich the soil—is within the memory of the young people of to-day. But cotton seed is now an important factor of commerce, its utilization employing many millions of capital and some thousands of workmen and adding to the wealth, health, and happiness of the nation. For some years after the discovery of the great deposits of coal oil in Pennsylvania that mineral product was used only for illuminating and lubricating purposes. It now has hundreds—perhaps thousands—of uses in the arts and in medical science.

It appears from recent publications that the corn-stalk is about to be rescued from comparative inutility and converted into a valuable contributor to the general welfare. In New England and some other sections of the North where small corn is raised the stalks have always been used for fodder. But in most of the Western and all of the Southern States only the leaves are thus used, the stalks being regarded as somewhat worse than useless, for they cumber the ground. Compared with the little yellow corn of the North, the great plant that bears that name in the West and South is like an oak tree beside a currant bush. But an enterprising resident of St. Louis, a Mr. Prater, has discovered by experiments of various kinds that there is great wealth in the despised and rejected stalks, even when denuded of their leaves or blades. This enterprising man has established at Owensboro, Ky., a plant for the utilization of this waste material. He asserts that the stripped stalk "can by proper manipulation be made to yield a variety of valuable products for which a market has already been established. Among the expected cornstalk products he mentions cellulose, celluloid, smokeless gunpowder, lacquer, cattle feed, roofing material, and a material that will answer every purpose of papier-mache. Green stalks, he says, are rich in glucose, and will yield "a better quality and a finer sugar with less expense than can be made from the cane of Louisiana." Mr. Prater cheerfully predicts the early arrival of the time when the stalks on every acre that has yielded a good crop of corn will be worth to the farmer \$15 or more. That means hundreds of millions of dollars. Mr. Prater says of his enterprise at Owensboro that it will be so successful that mills for the manufacture of cornstalk products will be established all over the South and that there will be ready sale for all constalks that can be found near railroad lines.

This enthusiastic inventor and investor is vouched for by the Atlanta Journal as "a successful business man," and that paper says that those who know him consider his indorsement of the cornstalk project strong evidence in favor of its practicability.

We do not know what the chances are for realization of the confident hopes of Mr. Prater, but we can safely predict that his experimental operations in Kentucky will be watched with wide and deep interest. It would add almost incalculably to the prosperity of the farmers and the wealth of the nation to enhance the value of the corn acreage to anything like the extent that he anticipates.

Another candidate for honors in the rotary engine line is James A. Goodner, of Mosca, Colo. His power-generator is the Eureka rotary engine, for which patent No. 573,179 was issued December 15. In this engine a rotating valve or abutment is secured upon a shaft. A revolvable disk is placed upon a shaft below and parallel with the first and bearing a piston. These two rotate in unison, forming one engine. Any required number of the piston-bearing disks can be keyed upon the shaft, each added one greatly augmenting the power. The parts are so related that while one piston is receiving live steam the others are using it expansively, each piston taking live steam in its turn. The space occupied by a six horse power rotary is 16x16 inches, 20 inches high.

A company has been chartered in Texas which is promoting a line to be built through the southwestern part of the State. It is called the Southwest Texas Railroad Co., and has a capital of \$550,000.

Important Patent Legislation.

One of the most important pieces of legislation relating to our Patent System was passed during the 54th Congress and largely through the influence of the American Association of Inventors and Manufacturers. It was an Act revising and amending the statutes relating to patents.

The following are some of the most important sections of the law:

"Sec. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor."

"Sec. 4920. In any action for infringement the defendant may plead the general issue, and having given notice in writing to the plaintiff or his attorney thirty days before, may prove on trial any one or more of the following special matters:

"First. That for the purpose of deceiving the public the description and specification filed by the patentee in the Patent Office was made to contain less than the whole truth relative to his invention or discovery or more than is necessary to produce the desired effect: or,

"Second. That he had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same: or,

"Third. That it has been patented or described in some printed publication prior to his supposed invention or discovery thereof, or more than two years prior to his application for a patent therefor: or,

"Fourth. That he was not the original and first inventor or discoverer of any material and substantial part of the thing patented: or,

Fifth. That it had been in public use or sale in this country for more than two years before his application for a patent, or had been abandoned to the public.

"And in notices as to proof of previous invention, knowledge, or use of the thing patented, the defendant shall state the names of the patentees and the dates of their patents, and when granted, and the names and residences of the persons alleged to have invented or to have had the prior knowledge of the thing patented, and where and by whom it had been used; and if any one or more of the special matters alleged shall be found for the defendant, judgment shall be rendered for him with costs. And the like defenses may be pleaded in any suit in equity for relief against an alleged infringement; and proofs of the same may be given upon like notice in the answer of the defendant, and with the like effect."

"Sec. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filled more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country."

"Sec. 4894. All applications for patents shall be completed and prepared for examination within one year after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action therein, of which notice shall be given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable."

"Sec. 4921. The several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions according to the course and principles of courts of equity, to prevent the violation of any right secured by patent, on such terms as the court may deem reasonable:

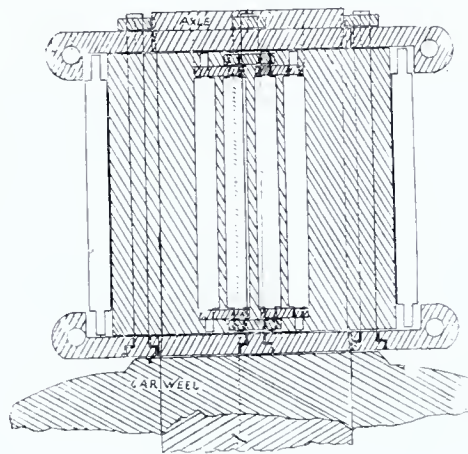
and upon a decree being rendered in any such case for an infringement the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby; and the court shall assess the same or cause the same to be assessed under its direction. And the court shall have the same power to increase such damages, in its discretion, as is given to increase the damages found by verdicts in actions in the nature of actions of trespass upon the case.

"But in any suit or action brought for the infringement of any patent there shall be no recovery of profits or damages for any infringement committed more than six years before the filing of the bill of complaint or the issuing of the writ in such suit or action and this provision shall apply to existing causes of action."

Improved Roller Bearing.

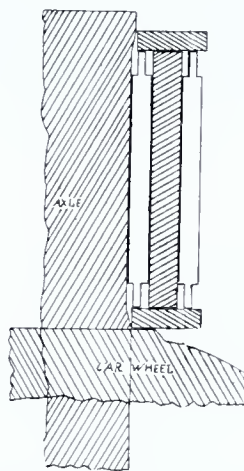
Our attention recently was called to what seems to be a very valuable idea introduced to the public a short time ago by Mr. Hubert Schon, a prolific and well known inventor of Allegheny, Penn., through the medium of his patent No. 575,618.

Mr. Schon's idea is embodied in a roller bearing,



and is particularly applicable to heavy vehicles and machinery, such as cars, roller mills, etc. We have carefully examined his invention and it cannot be disputed that its use will reduce friction very materially, and it seems to be equally true that its construction is so durable, simple and cheap as to make it entirely practical for use on many classes of machines for which a satisfactory roller bearing, though long sought, has not heretofore been provided.

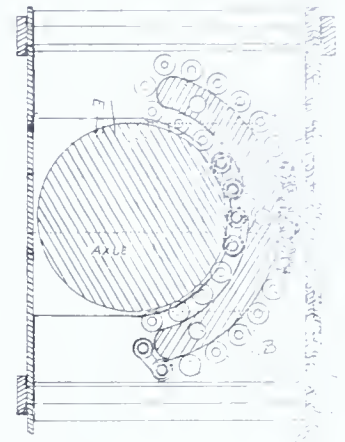
In Mr. Schon's invention the bearing box has an inner part, called the "bearing-part," the surface of which that is presented to the axle or shaft has a concavity concentric with the surface of the axle or shaft, while its opposite side is correspondingly



convexed and its ends are of a convexity similar to the latter and gradually merging into the concave inner surface. Interposed between the concave surface of the bearing-part and the axle or shaft are endless traveling chains to which are journaled a series of rollers that project above and below them and bear upon both the axle and bearing-part of the box. When the axle or shaft rotates, the rollers not only revolve upon the same and in contact with the concave inner surface of the bearing-part of the box, but they are also caused to travel around said bearing-part and upon the peripheral surface of the axle. This materially reduces the friction and correspondingly lessens the power required, while it permits rollers of a comparatively soft material to be satisfactorily used. The sides of the box project above and below said bearing-part so as to protect the rollers, prevent lateral shifting of the chains

and adapt the box for attachment to a truck or other part to which it is to be applied.

The construction is very clearly shown in the accompanying illustrations (in which A is the axle, B the bearing-part of the box, C the chain, D the rollers and E the projecting sides of the box) and as we stated above, it gives practical effect to a valuable idea and is destined to supply a need that has not heretofore been satisfied completely.



Times Picking Up.

The placing of orders for nearly 1,500,000 tons of steel within the past three weeks is the most important influence for improvement in general trade since the November election. A good share of these orders are for blooms and billets, and inasmuch as the bulk of them are placed with the more modern among the larger steel mills, the latter find themselves well supplied with work for months to come. The Bessemer pig iron and steel billet markets have been duly influenced and are firm, with moderate advances on heavy sales. The contracts for steel rails taken since the break in the price, together with expenditure necessary to lay the rails, means the placing in circulation of no less than \$35,000,000. The meaning of sales of rails for export has been exaggerated, as some orders placed abroad were due to English mills being temporarily engaged on other forms of steel. The rush for rails appears to be about over, and the outlook is for higher prices. Consumption of Bessemer pig iron is in excess of production, and wire and wire nail mills are running full time. Many woolen mills in New England have started up. Manufacturers are buying in expectation of a duty being placed on raw wool. Recent improvement in cotton goods is maintained.

BOOK REVIEWS.

Gas, Gasoline and Gas-vapor Engines, by Gardner D. Hiscock, M. E.—This is the only American book on this subject, and it is designed for the general information of every one interested in this new and popular motive power, and its adaptation to the increasing demand for a cheap and easily managed motor requiring no licensed engineer. The book treats of the theory and practice of gas, gasoline and oil engines as designed and manufactured in the United States. It contains many interesting chapters on horseless vehicles, electric lighting, marine propulsion, etc. The volume is handsomely illustrated with 220 engravings, contains 350 pages, and the price is \$2.50. Address: Norman W. Henley & Co., Publishers and Booksellers, 132 Nassau Street, New York City.

Practical Palmistry, Or Hand Reading Simplified, by Comte C. De Saint Germain, A. B. L. L. M. President of the American Chirollogical Society. In this really interesting and remarkable book Comte C. De Saint Germain has given to the public the results of his twenty-five years close study of the strange science of palmistry. It contains fifty-five interesting illustrations, giving the outlines of the hands of W. E. Gladstone, Queen Elizabeth, James Corbett, Eugene Sandow, Deming the murderer, and many others. It is a very clever defense of palmistry and will unquestionably have a large circle of readers. The Publishers are Laird and Lee, Chicago, who have gotten the book up in their usual attractive and elegant style.

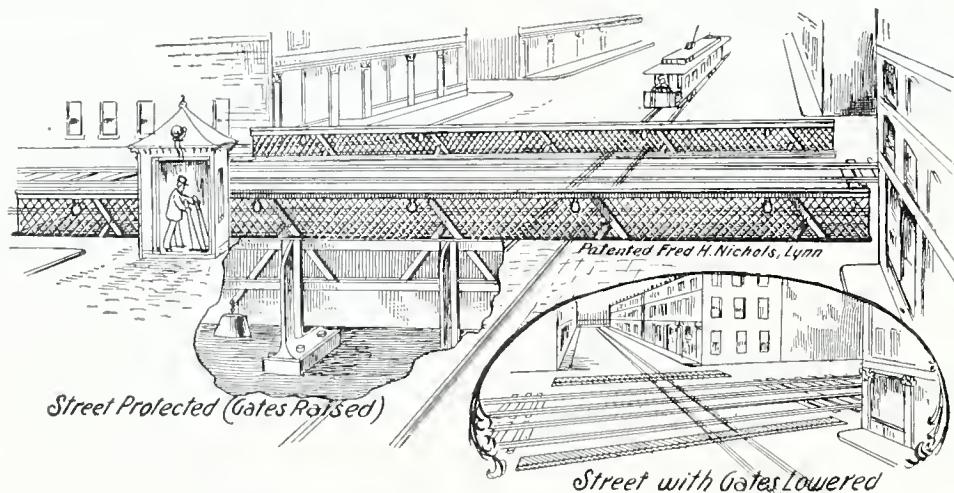
Consumers of gasoline are not a little interested in any invention tending to reduce the attendant risk, and this is the design of a lately patented improvement in gasoline burners. The burner is in the shape of a Maltese cross, having four arms at right angles, which center over a well. The metal lighting pan is so constructed that the amount of oil contained can be easily seen, which is a great advantage, and the device is both simple and safe.

Railroad Crossing Gate.

It is a new form of gate for use at railroad grade crossings, and is likely to revolutionize the duties of that important and care-stricken individual, the crossing tender. It is the invention of Fred H. Nichols, of the Thos. P. Nichols establishment, Market street, Lynn, Mass. When first shown in model form, its apparent advantages were so marked as to elicit a promise of the story of its invention at an early date. Since that time Mr. Nichols has been steadily at work perfecting the device, and the result is a model that will, if applied in practice, do away with the possibility of people meeting death by untimely crossing of grade tracks.

Mr. Nichols, like many others, was much impressed with the inefficiency of the many forms of so-called gates in use throughout the country at the present time. Very few of them are more than mere bars let down over the tracks, which any one can, and many do, entirely disregard, and pass around or dodge under in their insane hurry to cross before the train. With the new gate, however, it will be no more possible to get upon the tracks than through the grating of a counting room. An illustration which the inventor has prepared, shows the entire space between the buildings on either side of the street that crosses the track, filled in by the gates when raised into position.

Briefly described, the gate is a folding trestle of iron or steel, working on the general principle of the collapsing night gates used in the entrances of large stores, or somewhat like the old time folding



hat racks that were hung in halls where space was scarce.

A slit of the thickness of the gate extends alongside the tracks for the length of the crossing, and into this slit the gate falls when not in use. A motion of the lever at the adjacent round house or switch tower, and the gate rises into position. The height of the gate is sufficient to prevent jumping over, and there is none of the wholesale sweeping of the streets on either side of the crossing, as in the old style gates, such for instance, as were formerly used at the Causeway street crossing in Boston.

The inventor sets forth the general construction, principal advantages, and claims of his invention as follows:—The many advantages of such a gate will be readily understood. Its construction is very simple, there being no cogs or gears. It is made up of sliding and jointed bars and angle irons, and can be constructed without large expense. A trench about four feet deep is dug on each side of the tracks across the street. The earth sides of this trench are supported by plates of boiler iron (instead of expensive masonry), bolted to U shaped iron castings. To these castings is fastened the lower and stationary part of the gate. The slit or opening through which the gate comes up, is protected from dirt and debris, by the top rail of the gate when it is down, and when public travel is passing over it.

When the gate is up the opening or slit is protected, as all travel over it is stopped. The bottom of the trench is of gravel or concrete, and is graded towards one end, to allow the water which does not soak up, to run off into the sewer or blind drain. At the side of this opening on the street level are cast-iron plates covering the manholes, which allow a man to go the entire length of the trench to oil or adjust any of the moveable or working parts. The gate is counterbalanced with weights, and friction is reduced to a minimum, thus making its operation easy. A bell signal is sounded before the gates are raised.

At night incandescent lights are lighted by contact automatically made as the gates are raised.

Lanterns are used where electricity is not available. The gates are of quick and easy action, and can be operated by one man, where it often requires two. They can be operated from switch or signal tower in many instances. They will not interfere with trolley wires or electric car tracks, and are more of an actual protection than any that have heretofore been provided. The gates are raised and lowered by the simple movement of a lever, on which is a latch securing the gate in any position.

The moveable working parts are below the surface of the ground at all times, and thus protected from the weather, and are not at the bottom of the trench, so that they are above any water that might run into the trench after a heavy storm, before it has had time to run off.

A prominent railroad corporation has had the invention under consideration for some time, and the near future may see the gates in actual operation.

The Quacks and Electricity.

In a recent address Dr. George M. Sternberg spoke on "Pseudo-Science in Medicine," and described the use made of the electric belt, "microbe-killer," and the x-rays by the army of quacks "who trade upon the imperfect knowledge of the masses, and by plausibly written advertisements convince many, even of the educated classes, that their particular method of treatment is based upon the latest scientific discoveries." Continuing, Dr. Sternberg says:

A Franklin draws lightning from the clouds; a Galvani shows that an electric current may be developed by the contact of metals, and that such a current causes muscular contraction; and innumerable patient investigators add to our knowledge of electricity. The scientific physician avails himself of this potent agent for the treatment of certain

ailments in which it appears to be indicated, but admits that he meets with many disappointments in his clinical experiments. The pseudo-scientific quack writes, or has written, advertisements in which fact and fiction are so commingled that even educated persons may be deceived, and, having aroused interest in the alleged therapeutic value of this mysterious agent, offers his electric belt, or finger ring made of two metals, or pocket battery, as a sure cure for certain specified ailments, or, if less modest and more certain of the credulity of the public, as a cure for all of the diseases to which man is subject.

Gardeners should know that it is possible to so arrange flowers in a garden that all the purposes of a clock will be answered. It is said that in the time of Pliny forty-six flowers were known to open and shut at certain hours of the day, and this number has since been largely increased. For instance, a bed of common dandelions would show that it was five-thirty in the morning and eight-thirty at night, respectively, for these flowers open and shut at the times named, frequently to the minute. The common hawk-weed opens at eight in the morning and may be depended upon to close within a few minutes of two in the afternoon. The yellow goat's-beard shuts at twelve o'clock noon, absolutely to the minute, sidereal time. Our clocks do not follow the sun, but are generally a few minutes fast or slow, according to the longitude of the place where they are. The goat's-beard, however, is true time all the world over. The sowthistle opens at five A. M., and closes at eleven—twelve A. M. The white lily opens at seven A. M., and closes at five P. M. In the towns few people know about such details as these; nor are the flower clocks often seen anywhere though they have been constructed occasionally.

A process of vulcanizing india-rubber by means of bisulphide of carbon, and the operations identical to this process, have been condemned by English officials as dangerous to health.

Use of Aluminum in the Army.

Since the Madagascar campaign the value of aluminum army utensils is no longer doubted in France. Cooking and other utensils, altogether 15,000 sets, made of aluminum, proved entirely satisfactory. Mr. Moissan, member of the French academy of sciences, says in his report to the minister of war on the labors of the commission appointed to inquire into the usefulness of aluminum for military purposes: "The committee is now in possession of full information in regard to the value of camp utensils manufactured of aluminum. The French industry is able to produce cooking utensils of aluminum has been left aside for the time being, as it wears out too quickly."

For small game a person fond of shooting may avail himself of the novel idea of an inventor, who suggests that tin-plate shot would be preferable to the kind now in use. These latter are coated with graphite, to blacken and polish them, and this is alleged to be objectionable, because the graphite fouls the gun. Furthermore, the lead is acted upon chemically by the animal juices, so as to be injurious to the eater of the flesh. This is obviated by the coating of tin.

Yet another venerable superstition has met its doom at the hands of the irrepressible "scientists," says the *London World*. Until now people have been content to accept, if not to act upon, the theory that early rising—in conjunction, of course, with a correspondingly early habit of going to bed—is conducive not only to wealth and wisdom, but also to health. Indeed, a familiar rhymed adage protests as much in so many words. But, like many another primitive belief, it has been ruthlessly shattered by the scientific iconoclasts, one of whom now claims to have discovered that people who get up early go mad much more readily than others. In support of his theory he points to the undoubted prevalence of insanity among those engaged in agricultural pursuits. Though it is sad to see a time-honored doctrine thus exploded, one is disposed to favor the new opinion at the expense of the old. In any case, there can be no harm in being on the safe side, and after all, it is so easy not to get up early.

Chicago wholesale hardware merchants are now enjoying the novelty of selling nails to country retail dealers in carload lots, a luxury that has been unknown to them for nearly two years. The sales are especially pleasing to the wholesale men, as nails are the great staple of the business, and the demand for the same is simply looked upon as the advance guard of an improved demand for everything else. Nails now average lower than ever before in their history, though the billets from which they are primarily made are \$1 a ton higher than during the early part of 1895.

There is undoubtedly great expansion in the near future to be expected in the sale of American paper in foreign markets. With the present range of low prices in this country it cannot be possible that foreign manufacturers of paper can produce the article as low as it is being sold in this country today, hence the natural outlet for much of the surplus will be in foreign markets. We look to see a large trade in American newspaper in British markets, as well as in Australian and South American markets.

Only a few days ago a young woman died from blood poisoning, caused by cutting her tongue in sealing a letter to her lover, an incident which adds force to medical protests against the dangers of moistening stamps and envelopes with the tongue. A recent improvement in stamp and envelope moisteners embodies a reservoir adapted to feed water continuously to an absorbent material into contact with which a stamp or envelope may be brought, and has a waste receptacle for surplus water which may drop from the absorbed material.

Capt. A. T. Mahan, U. S. N., who contributes an article in the March number of *Harper's Monthly* entitled "Preparedness for Naval War," agrees with Von Moltke that war is an element of order, and inevitable where national individuality and national honor are strong. The sensible way to come happily out of it, he argues, is to have a force capable of grappling on even terms with the greatest force likely to be brought against us, and this he proposes to do by developing a large body of seamen in actual service.

A new bicycle chain cleaner seems to combine simplicity and effectiveness, and is readily attachable to and detachable from the frame. It is provided with a clip to engage a part of the frame, right and left screw-rods journaled in the frame. Shafts provided with nuts engage these rods, and the chain passes between revolvable brushes journaled on said shaft.

Street Railway Cars in the United States.

In no one department of street railway operation have more changes been made during the past five years than in the style of cars used. As in the case of the track, motors and generators the constant tendency has been toward heavier and more substantial construction. The strains incident to street railway service have shown that true economy lies in the direction of carefully and strongly built cars which shall be amply sufficient to sustain the shocks and wear inseparable from electric railway service.

A number of car builders have followed, in the construction of their cars, the well-known lines employed by the builders of steam railway cars. Others believe that strains to which street railway cars are subjected are different from those in steam railway practice, being more transverse and not longitudinal. In consequence they have followed more the pattern of the old sixteen foot horse car, which was itself similar in general design to the stage coach. Nearly all have, however, freely introduced iron or steel as a substitute for wood where a gain of strength would follow its employment, and have added other changes which experience

The proper length of a car for different conditions of traffic and service is still an open question, although a car body of less than twenty feet is less popular than formerly. For interurban service the long center aisle, double truck car, similar in general design to those used in steam railroad service, is generally regarded as the proper design.

A large proportion of the roads now employ one or more special cars of different services, mail, express and for parlor use. The construction of the latter type of car has received a wonderful impetus from the general popularity of trolley parties, and most of the roads in large cities which afford opportunities to cater to a traffic of this kind, now own one or more parlor cars. This branch of the business promises to form a considerable source of income in the future, and railways are beginning to learn that there is considerable profit in providing accommodations for pleasure riders.

The car represented in the accompanying illustration is, in its design, a radical departure from the ordinary type of street car, and combines comfort, convenience and safety for passengers, with all the requisites which make it a commercial success.

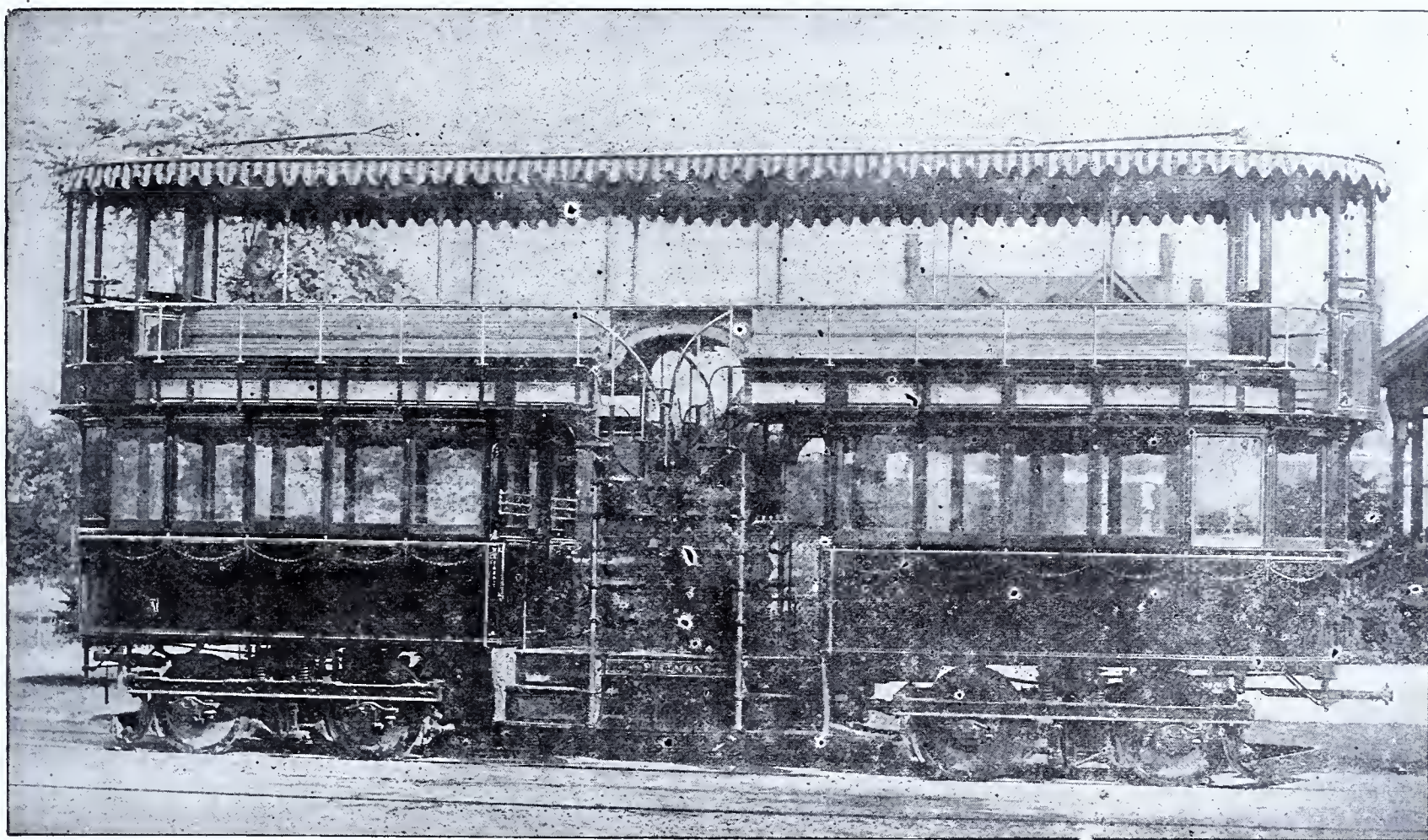
The most prominent feature of design is the central vestibule or passage, with divided central entrances. The seating compartments occupy the ends of the car and communicate with the vestibule and stairways to the roof seats.

This car is the invention of Mr. Charles L. Pullman, and is made by the C. L. Pullman's Centre Vestibule Car Company, Suite 806, Fisher Building, Chicago, Ill.

The above cut and description is taken from *The Electrical World*.

The Dynamite Water Sprite.

The tests made by Admiral Bunce's invading squadron at Charleston, S. C. have been very interesting as to the aid that can be given by searchlights to prevent blockade running. There are four heavy ships in the squadron and it appears to be well proved that no runner could pass even so small a squadron as that if the weather conditions allow the searches to be used up to the full measure of their efficiency. On a very foggy night, when the runner would be assuming heavy risks on other accounts, the little dynamite cruiser "Vesuvius" got through, but she tried four times in vain on an ordinary dark night to cut undetected across the fourteen-mile belt of light from the men-of-war. Such tests show that the searchlight is a very useful appliance in modifying the old conditions under which blockades were often run with success. Part of the Charleston tests comprised, it is said, a tabulation of the distances at which specific objects could be picked out by lights of given powers.



has suggested during the employment of electric motors as a means of propulsion.

A glance into the interior of a modern electric car reveals as many changes from the former horse car as does a study of the car skeleton. The first difference which would immediately strike an ordinary observer is that of increased beauty. Car decoration has received a great deal of study during the past few years, and the result of this has been a great increase in tasteful work. These striking effects in interior decoration which although attractive at first sight become tiresome, have given place largely to more subdued though as rich decoration, while as much or more money is spent on the interior ornamentation of the cars. While to some this expenditure in the line of what may be regarded purely a luxury may appear extravagance, experience has shown that it is an important factor as a traffic producer and the yield is a large percentage on the money invested. Outside of decoration pure and simple, the tendency during the past year has been constantly toward added comfort and luxury. Spring car seats and backs are becoming more common. Tasteful electroliers and car fittings are being more generally used, and a larger number than ever before of the electric cars being built are now designed to use ten lamps instead of five.

On the roof, at each end, is a cab for the motor-man, and accessible through the vestibule and stairways. The car has no end platforms, entrance and exit to the car being effected through the vestibule entrances, which design is claimed to be safer and more convenient than the ordinary way.

This type of car possesses some noteworthy advantages. Drafts through the car are avoided, and by means of automatic devices pleasant and healthful circulation of air is obtained.

The upper-seat feature is a very attractive one, affording, as it does, every facility for enjoying the sights of city streets and delights of the country scenery.

The question of cost, of course, is an important one with the railway companies. It is claimed that the saving in first cost will amount to over 50 per cent per passenger on the car equipment of the road, the calculation being based upon the relative cost and carrying capacities of the different types of cars. The carrying capacity of one of these cars is 80 passengers. Besides this item of economy, it is claimed that the electrical equipment for a centre vestibule car, seating 80 passengers, will cost at least one-third less than for two ordinary cars seating only 72 passengers. The percentage of earning capacity of one of these cars is said to be greater than that of two ordinary cars, and the vestibule car is so much lighter per passenger seated as to effect a large saving in power.

Old equipment can be remodelled and altered into upper-seat centre vestibule cars, at a comparatively low cost.

The New White Star Liner.

The White Star Steamship Co.'s new steamship, now in course of construction at the shipyard of Harland & Wolff, Belfast, Ireland, will be 704 ft. long and of 17,000 gross tons. She will be named Oceanic, after the pioneer vessel of the company, and when launched will be the longest vessel afloat, the length being 25 ft. longer than the Great Eastern, hitherto the longest vessel ever built, and 65 ft. longer than any vessel now afloat or in process of construction. It will be 103 ft. longer than the Lucania and Campania, the crack steamships of the Cunard Line, and 139 ft. longer than the Majestic and Teutonic, the present express steamers of the White Star Line. The Oceanic will be fitted out in a style similar to that of the Majestic, and will be subsidized as a cruiser. She will be capable of running 23,400 knots without taking on a fresh supply of coal. She will not be a record breaker, but will have large power. The Oceanic will be launched in January, 1898.—*Seaboard*.

One of the largest locomotives ever built in America has just been completed at the Schenectady Locomotive Works, for the Northern Pacific Railroad Company. It is a compound 12-wheeler, and weighs 92 tons; and when ready for duty will weigh 102 tons. It carries a steam pressure of 200 pounds to the square inch of boiler surface, and is equipped with the most modern improvements.

An Inventor who Thinks He Has Discovered Perpetual Motion.

J. G. Kaller, of Mankato, Minn., has applied for a patent for an invention which he says will take the place of steam engines and electric motors. The device is called a hydraulic motor, and the principle upon which it works is the natural law which causes lighter substances than water to rise to the surface.

An endless chain of small air-tight tanks is placed over two sprocket wheels in such a manner that on one side it will pass upward through a large tank of water. At each air tank enters the water tank from below through a water-tight valve it will be forced to the surface by the superior weight of the water, and in this way the chain will be kept in perpetual motion, revolving the sprocket wheels, to which shafts are attached.

Thus, if the claims of the inventor are true, the motor will run on indefinitely without fuel. He claims that the first cost will be less than that of a steam engine, while the operating expenses will be so small that all other motive powers will be driven out of use.

Hydraulic motors to furnish any horse power required can be constructed. Mr. Kaller has not yet constructed one of his motors, but will do so soon and has no doubt of its complete success.

A Photographic Ghost.

A very good ghost, writes J. A. Randall, may be made to appear on a photographic plate by means of sulphate of quinine, and this method of deception has been largely used for the manufacture of spirit forms. The procedure is simple. First obtain a light background and paint upon it an outline, with sulphate of quinine, a shadowy and ghostlike figure, the more vague and impressionistic the better. Expose to bright sunshine for a short time, then place behind the subject in such a position that the ghost will appear floating about the figure in the negative. The painted image is visible on the photograph.

Flowers Turning to the Sun.

It has been noted that a large number of species of plants have their flowers bending to the south-east when opening. The well-known Compass Plant, *Silphium laciniatum*, is one of this class. Some thirty years ago, a paper was presented to the Academy of Natural Sciences, of Philadelphia, showing that all the growth made in the flowers of the Compass Plant was made within two or three hours after sunrise. All growth after this was at a standstill until the next day. It has since been noted that the flowers which turn towards the south-east in opening, as already referred to, are those which choose this particular part of the day as their growing time. It is just possible that the heat and light after the rising of the sun has an influence on growth at that time, and this may be the reason for the turning in this particular direction.

A late improvement in handle-bar joints for bicycles is designed to provide for the reduction in width of cycles requisite to allow them to pass through narrow openings or passages, or to occupy less room when not in use, the invention allowing the handles to be turned up into a perpendicular position. The bar may be secured either in position for use or in a perpendicular position as desired by a self-acting bolt or wedge, and the handle-bar may be so locked in its inoperative position that only an authorized person, provided with a key, can return it, thus guarding against theft.

While the Northern cotton mills are shutting down entirely or working on short time in order to curtail production, the Southern mills are running night and day. Good reason exists for the belief that the South is to be the great cotton-manufacturing district of the United States, so far, at least, as the production of the coarse yarns and fabrics is concerned. Sixty-six cotton mills were built in the United States last year, and of this number forty-six were constructed in the South, while nearly every week chronicles the erection of a new mill.

Edison was 50 years old on February 11. He celebrated the day by working at his iron mines in New Jersey, rejoicing over the success, now in sight, of his magnetic ore-separating plans that have cost so many hundreds of thousands in money and years of closest labor. His health is very good, his energy and vitality as abundant and inexhaustible as ever, and his wonderful, searching eyes as bright and penetrating as in those early days in the seventies when his first discoveries began to attract the attention of the world. That great mane of hair is gradually whitening, however.

The Great Siberian Railroad.

An event hardly less important than the cutting of the Suez Canal will be the building of the Trans-Siberian Railroad by Russia. Germany looks longingly forward to the time when fast trains are to run from Calais to Vladivostock. Five thousand miles of steel rails have been laid already at a cost of 350,000,000 rubles. July 1, 1904, it is thought, will see iron horses running from the shores of the north to those of the Japan sea. In 1898, trains are to run over the Siberian road to the Amoor River. Thence, by fast steamer, passengers, post parcels, and freight are to be pushed on to Chaborowka; thence, in eighteen hours, over the South Russian section of the Siberian road, to Vladivostock, making the distance from London to the most important harbor of the Japan Sea seventeen and a half days. Many of the wares that go and come by boat now will find their way over land on these lines. Before 1901, Russia will have cut her way with steel rails across Manchuria, saving 300 miles. It is estimated by German engineers that when the road is repaired, after the first few years, and high rates of speed across Siberia are attained, the entire trip will be made in nine days and two hours.

The Anglo-Indo-Australian post bags weighed, in 1883 (the only year for which one finds figures), 842,448 kilograms. Last year, England paid France and Italy for transporting the weekly post bags 1,400,000 marks (\$333,200), at the rate of 2 francs per kilogram of letters and 25 centimes per kilogram of printed matter. Assuming that 650,000 kilograms were letters and 1,600,000 kilograms packages and printed matter, its importance to this Empire will be apparent. The sphere of influence, apart from political or diplomatic interests, over which the road is to extend, lies east of the eightieth meridian east of Greenwich. It takes in all Japan, China, Australia, Annam, Siam, etc. If only half as much postal matter passes over the new line in 1901 as went via Suez in 1895, Germany will have to get 680,000 marks (\$161,040) for transporting 325,000 kilograms of letters and 800,000 kilograms of printed matter and packages.

To no one does time mean more or so much as to a traveler to and from the East; 90 per cent of the passengers will prefer to make the journey in nine to ten or twelve days overland to making it, as now, over seas in twenty-eight to thirty-eight days. This, too, when tickets from Warsaw to Vladivostock are to cost only a 120 rubles, first class. From London to Warsaw costs now 150 marks (\$45.70). Thus, the entire ticket (London to Vladivostock) is to cost about 500 marks (\$119), first class. Of course, second class is to cost considerably less; how much is now not known. A ticket to Japan to-day, via Brindisi and the Suez, costs 1,800 marks (\$428). If to the price of overland ticket, the price of sleeping berth for twelve nights is added, there is even then a saving of \$166 to \$190 against the price now paid via Suez.

In 1895, 216,938 passengers went via the Suez Canal to China and Australia. For political, military, and other reasons, drop 117,000 from the list of possible passengers from the Russian route, and there remain 98,229. Take from these, 18,299 pilgrims and 80,000 remain. Take of these, 40,000 who are East Indian travelers, and there remain 40,000 plus 10,000 who hitherto have gone via the American transcontinental lines, plus another 10,000 West Europeans who go annually to the East on business or pleasure, etc., and we get 60,000, mostly first class passengers, using the new route. These must cross Germany from its western frontier to Alexandrowa, on the Russian border. Sixty thousand multiplied by 100 marks (from Aix la Chapelle to Alexandrowa costs now 92 marks) equals 6,000,000 marks (\$1,428,000). The goods going over the road to the East and those coming west will be, naturally, those that can pay the biggest rates—furs, gold, silver, platinum, and tea. Many of these are to come to Europe out of Siberia itself. That land is rich in minerals of all kinds; the Urals are giving out gold and silver in large quantities. How important to Germany are the furs of Siberia may be learned at Leipzig's annual fairs. If the hammer that sent home the first spike in the first sleeper laid was silver, the one that sends home the last spike should be gold. Much as the road may mean to Germany, Russia, and the rest of Europe, it may mean more to us, California, Oregon, Washington, our whole western country, if not our whole continent, is interested in this road. Russia has her hands full at home. The hands to help in the East are ours.

There is something more attractive in our civili-

zation and methods to eastern people than in those of Europe; at least, this is asserted by eastern travelers. To develop the resources of an Empire so vast as Russia will require capital, enterprise, and energy such as has made us the richest nation in the world. To equip her roads, to develop her great agricultural, fishing, mineral, and forest resources, Russia needs just such implements as have helped us. No time is to be lost if we are to have any part in the great drama that has for its plot the development and modernizing of the Orient.

J. C. MONAGHAN.

CHEMNITZ, December 4, 1896.

Consul.

Non-Sinkable Ocean Steamer.

Mr. Heinrich Zietan, of Berlin, Germany, has invented a new plan to prevent ships from sinking at sea and in collision. Ever since the fatal accident to the Elbe and to the Drummond Castle, the ship-building interests of the world have been investigating plans for the prevention of such fatal results in the future. Mr. Zietan has designed a special construction which makes a sort of a swimming girdle for ships. In case of collision this swimming girdle prevents the ship from sinking, and in case that it does sink, it does it slower and gives more time for lowering the life boats in an orderly way, thus giving the passengers better opportunity of saving themselves, in case of a collision where the ship sinks. It is believed however, that this swimming girdle or extra collision shell would prevent a ship from sinking unless it was actually cut in two. Certainly all the shipping interests of the country and especially the great passenger lines ought to be sufficiently interested in the safety of their patrons and cargoes, to thoroughly investigate all reasonable designs made by the intelligent inventors of the world. And we hope that they may investigate Mr. Zietan's plans and ascertain whether they will accomplish all he claims for them.

New Form of Copper.

The Electrical Review announces a new discovery in the system of casting copper.

Alloys are usually employed in casting copper, heretofore all foundry men here considered it impossible to cast copper pure, but under the new system it is claimed that this can be successfully done, and not only successfully done, but the now so called M. B. copper preserves an additional tensile strength of 33½ per cent, and also that a much higher elasticity has been developed. If this be true the new metal will have greater strength and conductivity than ordinary copper wire and will cause distinct changes in the building of dynamos, motors and electric railway apparatus, as the new copper will carry the same amount of current of metal.

Thomas A. Edison has taken a great interest in this new discovery. He accounts for the evident change in the structure of the metal by the theory that the shape of the crystals has been altered, that their lines are parallel, and that the molecules are thus brought closer together and into more intimate contact with each other. Mr. Edison it is believed is sufficiently interested in this new process to attempt its manufacture at Menlo Park.

A Gigantic Instrument.

EDITOR OF INVENTIVE AGE, Professor John A. Brashears, the famous astronomer of this city has for a long time been constructing a spectroscope for Dr. Hans Hauswaldt, the well known scientist of Madgeburg, Germany, and has now completed his great work. The instrument will be the largest in the world and the hope of all astronomers now is that by the aid of the gigantic spectroscope many important discoveries will be made. The length of the instrument is twenty-one feet, and it will require an especially constructed room twenty-five feet square in which to operate it. The grating has a six-inch aperture and is ruled with 110,000 lines and this ruling is so marvelously accurate that the millionth of an inch is the only difference between any system. The ordinary spectroscope shows from 100 to 200 lines belonging to the spectrum of iron, while the great instrument will reveal over two thousand. It is a great compliment to American ingenuity and skill that Dr. Hauswaldt should have come to this country to secure the best the world can produce in spectroscopes, and demonstrates how rapidly America is growing along scientific lines.

JAMES COLTON

Allegheny, Pa. March 15.

An Important and Valuable Telephone System For Use in Rural Communities.

Charles E. Buell, of Plainfield, N. J., has been awarded letters-patent for a telephone system that possesses valuable features and that affords results that are being sought after by those who desire to construct and operate telephone systems.

As compared with the apparatus commonly employed, the appliances have been simplified so that the cost for the apparatus for the subscribers, station is less than one-half the amount that has been required for the older, and commonly used apparatus, while the liability to become out of order, and the necessity for skill in the care of the system, is largely reduced.

Particular attention has been paid to making the system desirable for small installations, as in rural neighborhoods, in large buildings, those that wish a small distinct system, and, last but not least, in villages where the system can be combined with a system used for electric lighting by employing the same wires for both uses without interfering with the operation of either system; thereby lessening the cost of construction, as compared with the usual cost of the two systems, and making the expense come within the reach of those who may have been heretofore kept from using such convenient appliances; while by uniting the two systems, to make the same rent, light, fuel, and attendance answer for both; the cost of maintenance is reduced to the minimum.

To accomplish these results has required that the devices for the central station, as well as those for the subscribers' station should be endowed with new capabilities over the older forms of apparatus used for telephoning and lighting; but the changes that enter into the make up of the new system are such, that established systems can be made to conform to the new requirements by taking away parts rather than by expensive additions.

The advantages that grow out of the fresh thought that is involved in the invention by Mr. Buell will cause the telephones to multiply, for by such simplified appliances the farmer and his family will be led to use them to relieve the monotony and the isolation of their lives by being united to their neighbors, and to the adjoining towns.

The use of the phones to country folks will be varied, and useful. The farmer can quickly order whatever he may require, and direct the shipment of stock, etc., without leaving home. It will give him instant communication with his store-keeper, the railway station, the school, postoffice and all of his neighbors. Like many other things in the past, once started in the country all will soon have to drop into the use of it.

Diplomas at Paris.

At the Paris Exposition in 1900 only diplomas will be granted as recompenses. They will be thus classified: Grand-prize diplomas, gold-medal diplomas, silver-medal diplomas, bronze-medal diplomas, honorable-mention diplomas.

No exhibitor acting as a juror and no firm or company represented on a jury by any member, stockholder, agent, or employee will be eligible to an award. Persons exhibiting in several classes may receive awards in each class, but no one shall receive more than one award in a single class. Exhibitors sharing jointly a show case or other space may compete for awards if their exhibits are strictly individual. Only one award can be made for a collective exhibit, but every person interested may receive a diploma bearing the names of all participating exhibitors. Commemorative diplomas may be awarded to all persons who have co-operated effectively in the retrospective exposition.

Southern Women at the Paris Exposition.

The Paris Exposition of 1900 will probably include a feature of special interest to the South. Several women's exchanges in Southern cities have determined to prepare a display which will indicate what has been done by the women of the South in various ways since the Colonial period. Miss Annie Napier, manager of the Women's Exchange of Macon, Ga., is the originator of the idea, and it is stated that already the women of Chattanooga and Memphis, Tenn., have promised active co-operation. During the time between now and the exposition, plans for a display which will not only be extremely creditable to the women of the South, but to the Southern States and this country in general, can be formulated and carried out.

The yield of the beet root is twenty tons an acre, and the average price is \$4 a ton. The profit offered in beet cultivation is said to be greater than that of cereals.

Extensive System of Elevated Roads Planned for Tokio.

R. Nomnara, a special commissioner of the Japanese government to investigate different elevated systems in America and Europe, has arrived in San Francisco. "Tokio," said the commissioner, "which will be the initial city for the elevated system, is a great place and may in time be the biggest city in the world. It is 400 years old and has 2,000,000 people. It is growing right along, and is so situated that its growth must continue. The government will build in Tokio a great central station. Before this year Japan never bought a ton of railroad iron in the United States. This year already we have bought and contracted to buy 40,000 tons of steel rails. We have also bought a large number of American locomotives. During the past year our railroad building has progressed with great rapidity. We have about 3,000 miles of road in operation now."

Clothing Eggs.

The coating of eggs with a rubber solution, which, we believe, originated in Denmark, ought to be better known or more widely practiced, unless patent rights should prevent the application. Everybody knows the difference between a really new laid egg and one that ought to deserve this designation, considering the price we have paid for it. Of the various means of preserving eggs, this one appears to be one of the most effective, and it should not be too expensive either, since the rubber skin may be very thin.

The Production of India Rubber in Assam.

The annual exports of rubber from Assam at present amount to about 3,500 mannds (about 128 tons), worth in Calcutta £35,000. This includes, besides the rubber produced in the province, in the plantations and reserves, the "foreign" rubber collected and brought from the interior by the natives. The "Imperial Institute Journal" says it is estimated that from the latter source a supply to the extent of 900 to 1,000 mannds per annum may be kept up for five or six years, by which time the trees will have been exhausted, and supplies will have to be brought from a greater distance at increased cost—that is, assuming the rubber plants to exist in the remoter regions. Great difficulty has been experienced in preserving the trees from illicit tapping by the natives, even in the reserves. Mr. H. C. Hill, the Inspector-General of Forests, describes the present position of the rubber industry in Assam. He says the illicit tapping of trees in the reserves is easily explained. The impure rubber sells at a rupee a seer, and to obtain a number of seers a man has only to make his way to a tree, make cuts in the roots, and return three days later to collect his spoil. No system of inspection, or staffs of patrols, would render protection effective over a forest of 200 square miles, with perhaps ten or twenty trees to the square mile in the richest parts, even if men could be got to stay in the forests in the rainy season. Under existing arrangements the tapper works in the rains, when all guards are withdrawn. The only prospect of assuring a continuous rubber supply seems to be in the direction of artificial plantations, where the trees can be concentrated on a limited area, the effective protection and exploitation of which will be possible.

Nashville Centennial Exposition.

The one hundredth anniversary of the admission of Tennessee into the union of States will be commemorated by an exposition of broad scope, which will be held in the suburbs of Nashville. The exposition will open May 1, and will extend over a period of six months. The buildings and grounds are now practically ready for use, as the original plan contemplated the holding of the exposition during 1896, but it was postponed on account of the general business depression of the past year and the interference of the Presidential campaign. This delay has been of benefit, as it has afforded opportunity for the completion of the buildings and for the perfection of the plans of the exposition. This enterprise has been planned upon a liberal scale.

The buildings are large and architecturally attractive, and the grounds are admirably adapted for the purpose. It seems sure that this exposition will be an event of far-reaching importance.

A new process, known as the sand-blast process, for cleaning the bottoms of vessels was tested on the cruiser Atlanta, while in the dry dock, at the navy yard, Brooklyn, Monday. The experiment was made under the direction of Naval Constructor Bowles. It polishes iron and steel as bright as silver. It is a pneumatic process, the sand being forced by means of air pressure. The sand not only cleanses the bottoms, but polishes them at the same time.

The Action of Roentgen Rays on Vision.

I beg to report that of seven persons, one with amblyopia, subject to the Roentgen rays, six observed the Sternschuppenlicht, a peculiar shooting-star light. I have used the German name, as that seems to cover the description or character of the phenomenon. Four of the patients could count the individual stars, ranging between six and thirty-two in number.

The former were not totally blind, that is, they could locate a sixteen-candle-power electric light with one or both eyes, at variable distances of from three to eight feet. The patient counting thirty-two of these sparkling sensations, using both eyes, could distinguish and locate a lighted lamp at a distance of five feet. The patient who did not respond to the rays had been injured early in life, and both globes had been removed. It is needless to say that none of the patients was enabled to see with the aid of these rays, although by cutting off the rays by the interposition of a steel plate an eighth of an inch thick no such sensation was experienced.

In all of these experiments I used the "radio-scope," an instrument devised by me for this work. It consists of the ordinary fluoroscope, with a sheet of aluminum one-twentieth of an inch thick, used in place of the chemical or fluorescent screen; consequently these are not light, but ray effects. I mention this because in all of the recorded experiments the operator obtained considerable if not all light effects by using the bare charged tube, along or in conjunction with the fluoroscope.

From the foregoing I infer that this peculiar sensation depends, as regards its activity, that is, an increase in the number of Schuppen, upon the better or less atrophied or otherwise affected retina. That the lenses are not opaque, or rather impervious, is shown by the same phenomena appearing in the normal eye after a lengthy exposure, attended by headache, supra orbital, and deep-seated pain in the globes of the eyes.—Dr Frederick Kolbe in the *Electrical Engineer*.

A Machine That Will Free Pulp Wood of Knots.

It may not be generally known that M. N. Jones, the representative in the legislature from Lincoln is one of the best posted men in the country on matters relating to wood pulp manufacture, a successful business man who deals with extensive interests, and an inventor of pulp making machinery of great value. Besides being the inventor of a patent sulphite digester which is in use in many of the largest mills in the country, and other machinery, he has just patented a machine for taking the knots and foreign substances out of wood for sulphite pulp, which is worth thousands of dollars to him in his own mill and has revolutionized the old methods.

The freer the wood from knots and foreign matter, the whiter and better quality of pulp it makes. The usual methods employed have been the use of augers with which the knots were bored out by hand, but they could only be partially removed by this process, as many of the knots run crosswise and could not be wholly removed; and the hand picking of the knots, after the wood had been chipped, girls and women being mostly employed for that purpose. Very few mills in America have adopted the hand picking plan on account of the enormous expense, while in Europe the hand picking process is in use in nearly all the mills, as women and girls can be employed for a few cents a day. By reason of this hand picking process the European manufacturers have been able to furnish us with a much cleaner and better grade of pulp than was manufactured in this country.

But Mr. Jones' machine will clean the chips cleaner than a hundred women and girls can do it in the same time. The method is a very simple and inexpensive one. The wood is prepared in the usual manner by passing the blocks through the chipper. The chips are then taken up by a blower and discharged against a steel plate which disintegrates them, after which they are passed through the machine which cleans out the knots. This is a tank or vat filled with water and by a system of machinery the chips after entering the vat are submerged and taken to a carrier. The clean wood chips suitable for pulp float and are taken out, while the knots and resinous matter sink and are carried off by another carrier at the bottom of the tank. The claim is for an improved method of simultaneously moistening and assorting the clear wood chips for cooking in the digester. Mr. Jones has been using his new process, the machinery for which was patented in December, successfully in the mills of the Katahdin Pulp & Paper Co. at Lincoln of which he is manager, and which have a capacity of 30 tons a day.



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By Edward P. Thompson, M. E., E. E.

Mem. Amer. Inst. Elec. Engineers, Amer. Soc'y Mech. Engineers, author Inventing as a Science and an Art. Assisted by LOUIS M. PIGNOLET, N. D. C. HODGES and LUDWIG GUTMANN, E. E. With a Chapter on Generalizations, Arguments, Theories, Kindred Radiations and Phenomena, by Professor WM. A. ANTHONY, formerly of Cornell University, Past Pres. American Inst. Electrical Engineers.

THE BOOK INVOLVES

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On receipt of a copy of this work Dr. W. C. Roentgen wrote as follows: "I express to you my sincere thanks for kindly sending me your book 'X Rays,' which I have read with great interest."

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At this season the mind of the dealer naturally turns to novelties, and as the Ohio Electric Works, of Cleveland are the leaders and headquarters for supplies in this line, a word about this concern and its products will be interesting. In this attractive branch of the science, as in the other branches, the leaders are young men.

Mr. Albert C. Fletcher, the senior partner, has been engaged in electrical pursuits for the past twenty years, and his inventions have been phenomenally successful electrically and commercially. The sale of the electric light for neckties has been simply wonderful since its reduction to a popular price, and the bicycle electric light made by the Ohio company is the only one left in the field, of all that entered last spring. This successful light for the wheel will lead them all the coming season, as every part has been perfected and the price so cheapened that the cheap oil lights will be relegated to the ash heap in the spring. All who see the new Ohio Lights are emphatic in the belief that electricity is the only thing intended for light on the wheel. Other inventions, such as cap lights for bands, miners and clubs, miniature lamps, small motors, etc., are illustrated in the company's catalogue and show the novel applications of the current in all branches of the science. The new electric student's lamp deserves special mention.

Mr. J. W. Hencke, the junior partner, was for eleven years with the Standard Oil Co., and on account of the growth of the business of the Ohio Electric Works was induced to sever his connection with the Standard and devote his time to the financial part of the business and his success is attested in the growth and success of the concern.

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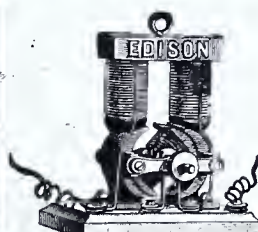
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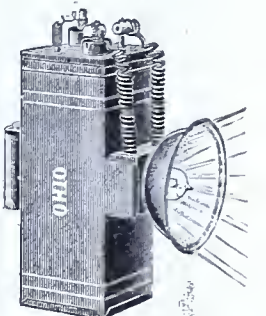
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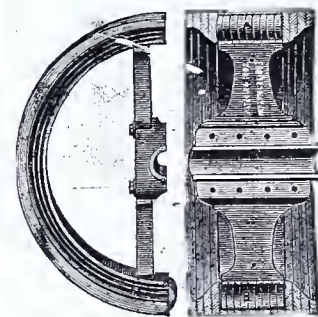
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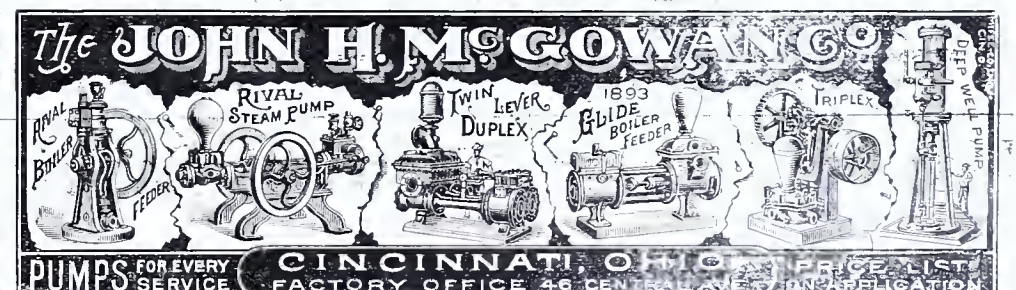
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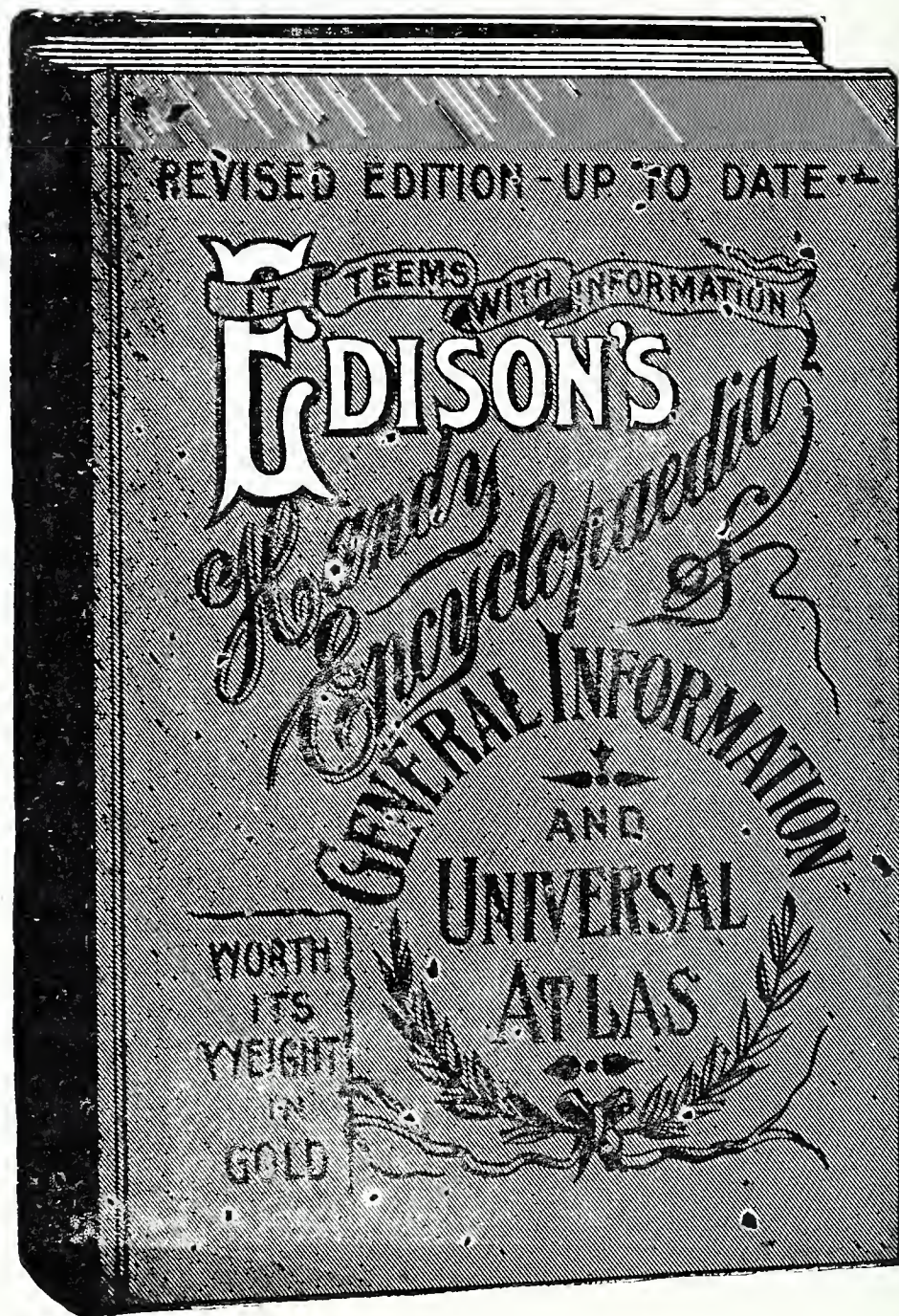
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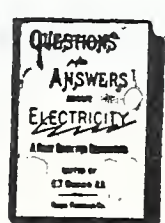
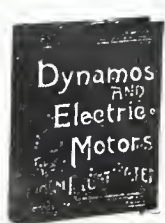
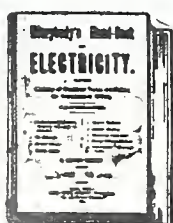
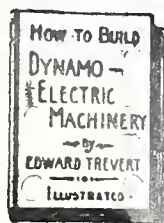
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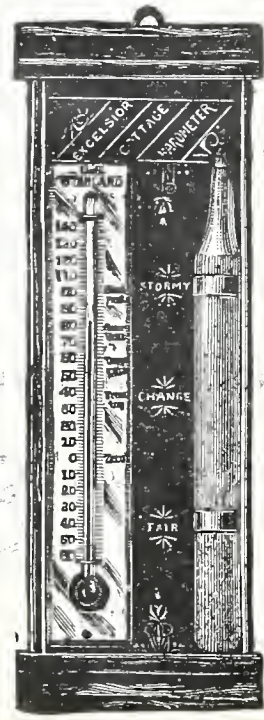
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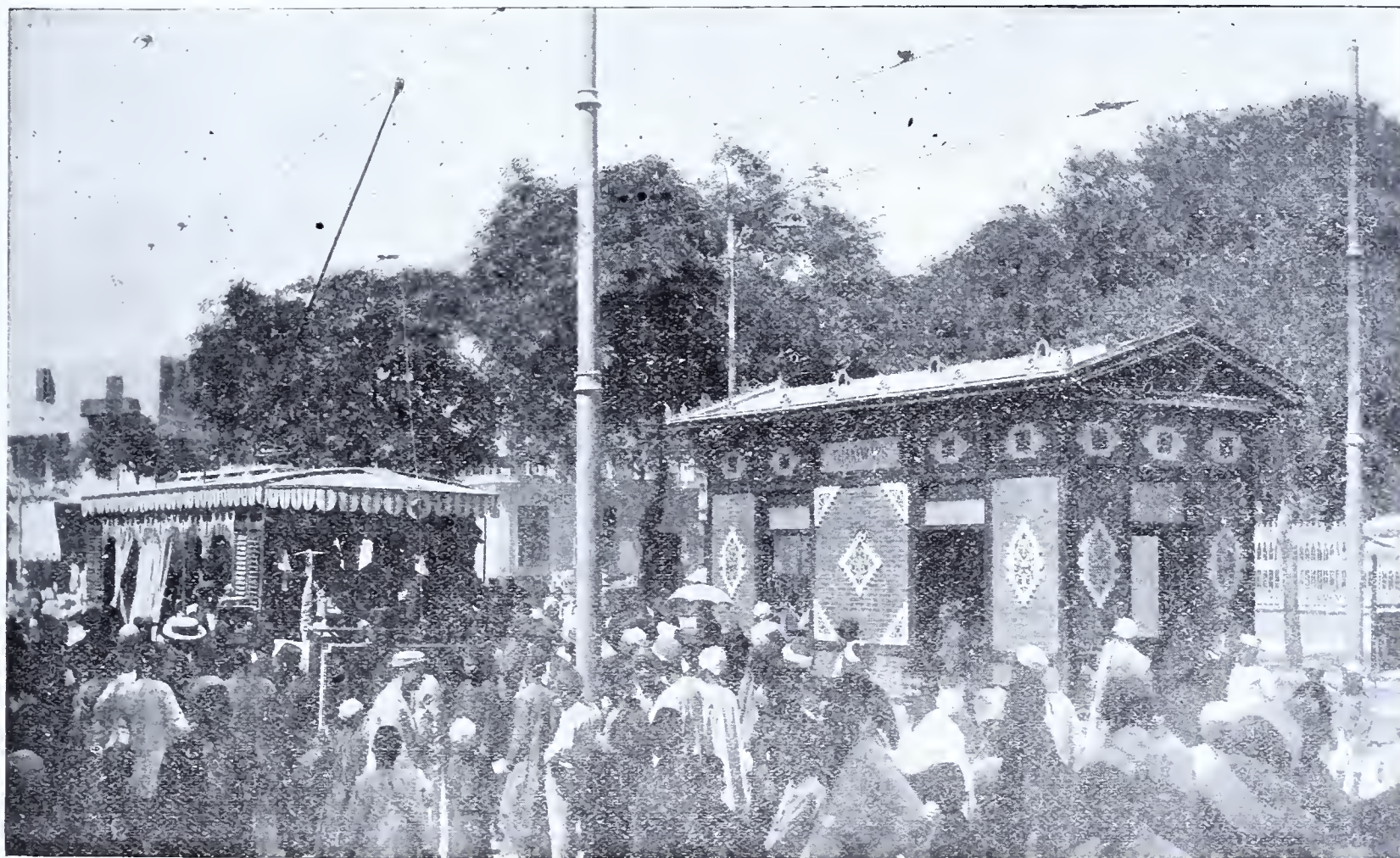
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Correspondence with inventors, mechanics, manufacturers, scientists and others is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

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WASHINGTON, D. C., APRIL, 1897.

SOMETHING of the value of New York surface railway franchises may be learned from the trouble the Fifth and Eighth avenue lines are just now experiencing in their efforts to substitute electricity (conduit) for horse power. Technical objections are made to stay proceedings pending a decision on the proposition of a wealthy importer, Mr. Henry J. Braker. He offers to pay the city \$1,000,000 cash for each of the franchises, pay to each company the original cost of construction, with 10 per cent added, and hereafter pay the city 5 per cent of the gross income, which he figures out will amount to a round \$50,000 per year for each road.

THE announcement is made that a special edition of the Canadian Manufacturer of Toronto will be issued containing the full text of the tariff bills of Canada and the United States as soon as they are enacted into laws, together with the British tariff. This special edition will possess unique and exceedingly valuable advantages as an advertising medium to all those who desire to have their business brought to the attention of the managers of thousands of cotton and woolen mills, pulp and paper mills, flour and lumber mills, coal and gold mines, engine and boiler shops, machine shops, electric lighting and street railway stations, bicycle factories, etc., in Canada and elsewhere.

THE suggestion made by the Railroad Car Journal that a palatial car be built for the use of the president of the United States is a good one. An entire train ought to be constructed and every convenience that inventive genius can suggest should be incorporated in the construction and furnishings. In this matter old Mexico is already ahead of us. The car building firm of Barney & Smith, Dayton, Ohio, is now at work on an entire "presidential train" for the use of the president of Mexico. The president of the United States does not travel much as a rule but when he does take a trip it ought not to be necessary to have some railroad magnate place his own private car at the disposal of the chief executive of the greatest country on earth.

ON March 30th a patent was granted to Mr. S. V. Essick, of Yonkers, N. Y., on a battery for generating electricity from heat. The inventor states that, with five cells contained in a case occupying less than one foot, he generates a current equal to 75 watts, and that each cell yields one volt and more than 15 amperes. To increase the output it is only necessary to enlarge the cell. The new generator consists of an outer conducting case, ordinarily copper, a more positive metal suspended therein, an electrolyte of water and sulphate of copper, a means of feeding a salt of copper, and a source of external

heat. The heat employed is simply what is required to raise the liquid in the cell to 180 degrees, after which a very diminutive amount is sufficient to keep it at that point. The immediate fields for the generator are for running all kinds of light machinery—sewing machines, machinists' lathes, fans, dentists' and jewelers' lathes for isolated light plants, launches, etc., etc. The device being simple and inexpensive, it is expected to meet with a popular demand.

IN the Melbourne Age ten years ago a communication appeared from the pen of George G. Turri, the patent expert, complaining strongly of the scandalous stagnation in issuing records from the Australian patent offices, then seven years in arrears. The condition now seems to be still worse and nothing but universal agitation of the matter will bring relief from inventors and their backers. A recent issue of the Melbourne Age comments on this condition of affairs in the following forcible manner: "There would be no real difficulty in securing better patent legislation if the higher officials watchfully exerted themselves. In sterility, the Victorian administration is supreme. The convenience of inventors is not made an object, nor the sweeping away of objectionable rules. These are enforced in no other country in the world in the harsh, tyrannical manner which prevails in Victoria, where, seemingly, an object is to give the maximum of trouble. As to stagnation in publishing patent records, Victoria is the shocking example, though all the colonies are miserably neglectful. Nearly every Commissioner or Registrar of Patents in Australia (not one of whom we personally blame) is also engaged in some other totally different Government office for the greater part of his time, and has not the time to remove his own ignorance of patent laws and administration of such countries as England, Canada, and the States, let alone the subsequent setting of his own patent office in order. This should not be. Even if subordinate officials had the authority and the ability we should soon see a different state of affairs. The officials have merits, of course, even apart from frock coats and top hats; but what of these? We must judge a tree by its fruits—not by its leaves, trunk, and roots."

SENATOR HANSBROUGH is receiving requests from those newspapers having stock in some syndicate or prize offering patent and pension claim agency in Washington not to urge the passage of his bill to protect inventors from the fraudulent and misleading practices of patent attorneys. Every inventor should not only thank Senator Hansbrough for his efforts in their behalf but should urge the senators and representatives from his state to work and vote for the speedy passage of the measure in question, no class of citizens in the world are beset by so many and such cunning and persistent sharks as inventors.

THE commissioner of patents has had a large number of cases called to his attention in which examiners and others in his office were reduced during the last administration for no reason, it is claimed except that it was necessary to make room for democrats in the higher grades. Commissioner Butterworth will shortly consider these cases, and in all instances in which he is satisfied that an injustice has been done he will restore examiners and others who were reduced to their old places. Many of these cases are those of ex-Union soldiers.

A TROUT RUN client writes for information but as only the initials "G. B. P." are signed to the letter it is held for the full address.

A newly patented sail for bicycles is made of canvas, fastened to a light frame attached to the rear hub and the saddle post of the wheel and extending upward like a pair of wings, high enough to be top-heavy and blow the rider over in a strong wind.

Among the many new devices to assist the blind, one of the best is a typewriter in which the keys have raised letters and which punctures the paper with either letters or dots contained in one of the blind alphabets.

To Protect Inventors.

Every inventor in the United States owes a debt of gratitude to Senator Hansbrough of North Dakota for the introduction of a bill in the United States senate which if passed, as it probably will be, will protect inventors from a number of patent sharks who have been fattening on them for the past ten years. THE INVENTIVE AGE has always taken strong grounds against this really iniquitous work and proposes to prosecute the good work as long as there is a patent shark left to fatten on the innocent inventor. This journal has persistently warned the inventors of the United States against these institutions, but as we have often said the American inventor like the rest of the American public seem to relish being humbugged, and so they continue to fall into the clutches of these sharks and waste there hard earned money on schemes that are fraudulent, deceptive and created only for money getting purposes. The following is Senator Hansbrough's bill in full:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That hereafter it shall be unlawful for any person or persons, firm or corporation, engaged in procuring and prosecuting patent claims to offer or award to their business correspondents or clients any gift, prize, or chance to win one, medal of honor, certificate of stock, or any other article or thing of real or supposed value, intrinsic or otherwise; and any person or persons violating the provisions of this Act shall be deemed guilty of a misdemeanor, and on conviction thereof shall for each offense be punished by a fine of not less than five hundred dollars and not more than one thousand dollars, or by imprisonment at hard labor for not less than six months nor more than one year.

SEC. 2. That all applications for patents which may hereafter be filed by or through an attorney, or any person representing himself as such, shall be accompanied by an affidavit of such attorney or person that he has not violated the provisions of the first section of this Act, and that false swearing thereto shall constitute perjury.

SEC. 3. That in all cases where the government has heretofore or may hereafter receive fees for or on account of devices already patented in the United States the amounts thereof shall be promptly refunded to the respective payees.

SEC. 4. That the Commissioner of Patents shall, as early as practicable, prescribe and promulgate rules for the admission and disbarment of attorneys practicing before the Patent Office, said rules to be subject to the approval of the Secretary of the Interior.

Another step in the protection of labor has been made in Great Britain, that still carries the penance of the word in industrial reforms. In what is known as the truck act, the power of the employer to inflict unlimited fines, or to make unlimited deductions in respect of bad work, or for materials to be used as a means for the workmen's work, was not amenable to legal protest or restriction. It is proposed to remedy this possible abuse of power. Fines are not to be absolutely prohibited, nor is an employer forbidden to sell goods or material to his workmen, deducting the same from his wages, but the law steps in to protect the workmen from imposition. A like revision of some old customs in this matter of fines and pluck-me stores might not be amiss this side of the herring pond.

The deposits in the saving banks of some of the older states during the year 1896 are hardly in favor of the theory that the working classes of the country are more or less pauperized and insolvent. In the New England states, especially, the evidences of thrift and economy are more distinctly marked. Nor is New York left in the lurch, deposits in that state amounting to \$26,412,384. It is true that times have been dull, and wages comparatively low, but that enough margin of pay has been left above the cost of living is demonstrated by the figures of bank deposits. It is estimated that the total of savings in such banks in the State of New York alone amounts to \$718,176,888. In this instance, labor has not been going to the dogs, but to the savings bank.

To prevent the spraying of water as it is discharged from a spigot a guard with a reduced lower end is fitted over the end of the spigot, the upper end having rubber washers to prevent leakage and the interior containing two wire gauze diaphragms through which the water flows.

A recently patented safety check for banks has coupons attached to the upper edge and each end, representing tens, hundreds and thousands of dollars, the larger coupons being detached until the larger amount is reached, when it is desired to use the check.

The Lottery System as Applied to Patent Practice.

We publish on another page an abstract of a paper read by Mr. Albert Scheible before the Chicago Electrical Association. In it the subject of patents is considered from the ethical and practical standpoint, and the conclusions reached by the author are at once conservative and just. The article is most timely, for in this country the need of a reform of patent practices in certain directions was never more urgent than now.

Two or three factors underlie the relation of inventor and patent attorney, factors similar to many which are discernible in other relations of life. The inventor requires good service; his work must be executed up to the highest standard, and such work has to be paid for. Any system which purports to give such service for other than adequate compensation, by that fact makes itself an object of suspicion. Impartiality must characterize the solicitor's work. No human being can pronounce upon the merits of an untried device, and the attorney, among the many subjects for patents which are placed in his hands, must have no favorites.

The attorney, therefore, must hold a definite business relation to the inventor and the latter must feel that he is getting in the services of a thoroughly competent solicitor the best value for his expenditure of thought, time and money. His view of the case eliminates side issues. Flattery of the inventor and the skillful raising of his expectations, touching his vanity and his desire of pecuniary returns by specious promises, should not form part of the transactions.

Unfortunately, the hard working necessarily imaginative inventor has long been a subject for attack by a class of patent attorneys who apply all the methods of commercial life to getting money out of him. They will give no honest opinion as to the possible patentability of a device, because their first and only thought concerns their fees. These can only be earned by bringing the case before the Patent Office, and any doubts on the part of the inventor must be overcome by persuasion. He must be made immediate use of, and his invention is mature, from the standpoint of the unprofessional solicitor, as soon as it can be enticed into the office to yield a return in fees.

Every now and then a peculiarly flagrant example of unprofessional practice comes to the surface and seems to cast a shadow on the whole profession.

Thus a firm of patent solicitors may convert their business into a lottery system, and undertake to persuade inventors to submit themselves and their inventions to a chance competition. A system of prize awards for assumed meritorious invention, a system including cash awards and silver medals, incredible as it may seem, has actually been inaugurated by a concern of patent solicitors. Periodically the cash prize is given for the "most meritorious and simplest invention."

Only one inventor gets the prize, and for the consolation of his less fortunate brethren silver medals are issued galore. These medals are cheap affairs, but they are calculated to tickle the vanity of the thoughtless.

Should such an institution as the Franklin Institute, of Philadelphia, the American Institute, of New York, or other association of that character issue medals for real merit, there would be some discernible *raison d'être*. The impartiality of the judgment and the purity of the motives underlying the establishment of such a competition would be evident as there would be no oblique motive discernible. But in the case we cite, it is a firm of private patent solicitors who, in order to boom their own business, offer these prizes, which are paid for indirectly by the inventor.

The value and significance of the award, even of the grand prize, may, however, be gaged by the fact that it happens that, in spite of the strenuous efforts of these attorneys to prevent such a result, the invention for which the prize was awarded is rejected at times by the Patent Office, and the patent refused.

The motives of the system are so clear that little sympathy seems due those who suffer by it.

The reduction of the profession of patent attorney to the low grade marked by this lottery system is to be greatly deplored. The cheap medals and insignificant cash prizes, the publishing of portraits of the victims in a cheap journal, under the same control, are simply "chromos," with which to attract customers. They combine patent soliciting with alleged patent selling and promoting, and sugar the whole with foolish awards.

The evils of such practice are great. The inventor has always been at a disadvantage in the busi-

ness world, as his habits of thought, as set forth in the lecture above referred to, are not always those requisite for pecuniary success. The methods we have described are adapted simply to lead him on by appealing to the gambler's spirit in human nature. What is the cure and how are practices such as those we have described to be prevented?

After an inventor has secured a patent his standing in the federal courts protects him, but his path to the patent office needs guarding. The establishment of a patent bar, long since and frequently advocated, would seem the least that should be done for the protection of inventors from men of the class we speak of. At present the patent solicitor is nearly exempt from supervision, the patent commissioner having the right to suspend him from practice for only the worst and most obviously dishonorable practices which come under his personal cognizance after the case is filed in the patent office. The raising of the standing of the patent solicitor to a high professional level and the maintenance of the character of the profession is a question of the first importance. The establishment of a patent bar, subject to proper extent of jurisdiction by the commissioner of patents, would at once do away with the evils described. Meanwhile the inventor can protect himself to some extent by consigning suspicious firms to the oblivion which they richly deserve.—*Scientific American*.

Bicycles in Germany in 1897.

Consul Monaghan, of Chemnitz, writes to the Department of State:

Germany's bicycle business in 1897 is to beat all previous records. Great preparations are being made to meet enormous demands; most of the factories that failed last year to meet demands have doubled capacity and output. Estimates say that each concern, and of these there are a great many in the Empire, will deliver 20,000 to 40,000 wheels. Although orders up to capacity, for delivery in 1897, have been booked, the demands for good wheels is increasing every day. One company near Nuremberg send away weekly eight double car loads, or 1,000 wheels. If an effort is made to get a good, fair-priced American wheel on this market, say one worth from \$50 to \$75, a big business can be built up. A \$100 wheel won't do it, and any effort to push such or to put them on the Empire's markets, except in certain circles of Berlin, Breslau, Dresden, Frankfurt, etc., will fail. Good, light, substantial, neatly finished wheels at \$50 to \$75 will sell. Freight to Hamburg or Bremen can be easily ascertained in New York; freights from Bremen or Hamburg to Chemnitz average 3.90 marks (93 cents) per 100 kilograms (220.46 pounds). Duties: Polished, finished, per 100 kilograms (220.46 pounds), 10 to 20 marks (\$2.38 to \$4.75); with parts of wood, 6 marks. I may say that no article in the long list of those taxed is so indefinitely dealt with as bicycles. Whether a purpose lies behind this fact, I can not say. Duties, however, are not high in any sense of the word. That they are in no way protective is demonstrated by the number of wheels that come from England and other countries. A bicycle-lamp factory near Chemnitz is to turn out 200,000 lamps or lanterns in 1897. Shops for parts are as busy as they can be. Five years ago, the most sanguine had no idea of such enormous development. One concern in this city, that four years ago had forty or fifty hands, has hundreds now. The best way to work this market, it seems to me, would be to send parts and put them together over here, thus saving enormously in freight rates.

Electricity on the Chicago Alley Elevated.

Steam power is to be superseded by electricity as motive power of the Chicago Alley "L." The road will also be connected with the Union loop and will carry passengers into the downtown districts instead of leaving them at Congress street. It is designed to make trains run almost as fast as those of the Illinois Central. Engineers are at work on specifications for bids on equipping the road with electricity. The plant will be ready in six months, if present plans are carried out. Fifty motors will be built for the road by Sargent & Lundy at a cost of between \$400,000 and \$500,000. The coaches now in use are to be reconstructed. Other changes and the electric plant will cost \$1,000,000. A third rail will be used. To make it a more formidable rival of the Illinois Central, President Leslie Carter and other officers and directors of the Alley "L." will make the passenger-cars comfortable to a point of luxuriousness, and will cause trains to be run almost as frequently as street cars.

Barbed wire for fences is made cheaper by a new process, in which the barbs are stamped out of the center of a flat strip of metal as it runs through the machine, the barbs being so formed that when the ends of two wires are brought together by a screw to raise or lower the platform as desired, the whole resting on an auxiliary truck when not in use.

What Makes Niagara Falls Power?

What makes Niagara Falls Power possible is the fact that Lake Superior, Lake Michigan, Lake Huron and Lake Erie, with a combined area of ninety thousand square miles, which are the reservoirs of some two hundred and fifty thousand square miles of water shed, are situated six hundred feet above the sea level. The great volume of water falling over the vast territory flows on its natural course to the Atlantic Ocean with but a slight descent until it is brought into the narrow Niagara River, when, in the rapids just above the falls, it declines fifty-five feet and then with a single plunge drops into the abyss, one hundred and sixty-five feet below. Eminent engineers have computed that two hundred and seventy-five thousand cubic feet of water pass over the falls every second, representing in theoretical energy over six million horse power.

The idea of capturing this vast power and subjecting it to industrial uses had for many years been considered, but it was not until 1889 that definite steps were taken to bring it about, and in the short period of less than six years this, the greatest engineering feat of the nineteenth century, became an accomplished fact: part of the power is now operating the street railways of Buffalo, 22 miles away. Although many fragmentary articles regarding the scheme have been published, very few people have any more than a faint idea of the magnitude of the plan, the ultimate aim of which is to obtain some 450,000 horse power, which is to be distributed electrically hundreds of miles away.

Appreciating the immense industrial importance of this fact, the proprietors of Cassier's Magazine have spared no labor or expense in assembling all the important data incident to the work from its inception and the result is a Niagara Power Number, comprising 224 pages of text with about 200 illustrations, making a magazine three times the size of the usual issue, and undoubtedly the largest and most important engineering publication ever issued.

Artificial Diamonds.

Diamonds of a very small size have been produced artificially heretofore, but no one has as yet succeeded in producing large ones. Mr. E. Moyat claims to have discovered a new process by which to produce diamonds of large dimensions. In principle, his process is about the same as the one already invented by others, and that is to obtain crystallized carbon out of iron and coal, by means of high pressure and high temperature. Yet there is some improvement in the Moyat process as regards the technical operation. Pulverized coal, iron chips, and liquid carbonic acid are placed in a steel tube and hermetically sealed. The contents are then subjected to the action of an electric arc light by means of two electrodes introduced into the tube. The iron liquefies, is then saturated by part of the pulverized coal, at the same time the liquid carbonic acid evaporates, thereby creating an enormous pressure on the mixture of iron and coal. This pressure again considerably increases the dissolution of the coal in the liquid iron. While the mixture is cooling, the carbon crystallizes partly in the form of real diamonds and partly in the form of similar stones. These crystals are then segregated by dissolving the iron in diluted muriatic acid. The mixture, by the above method, remains under high pressure during the operation of the electric current, while by other methods the pressure is obtained later on only by means of the rapid cooling process of the crucible.

A Punctograph.

Albert Swindler has invented a "punctograph," or point-writer for the use of the blind, it being designed to use either the New York or Braille systems. The main rectangular supporting frame has a pair of carriage track rods secured to the upper ends of the standards, a rectangular carriage frame with two pairs of rollers reciprocally adapted to travel longitudinally on the track rods, a rear frame piece provided with the system point-changer, a bell signal mechanism fixed between the rear standards of the supporting frame, a front frame piece with a goose-neck projection secured between the front elevation of the supporting frame, and a signal rod rigidly fastened in the supporting frame, for the purpose of forming an oscillation shaft or axis for the feed, space and key levers. The paper-feed, and line-spacing mechanism comprises an actuating feed roller, an auxiliary reciprocating roller and a line-spacing rack-raising lever. The puncturing rods, which pierce the paper, forming raised characters which will be easily understood by the sensitive fingers of the blind.

INVENTION AND RAILROADS.

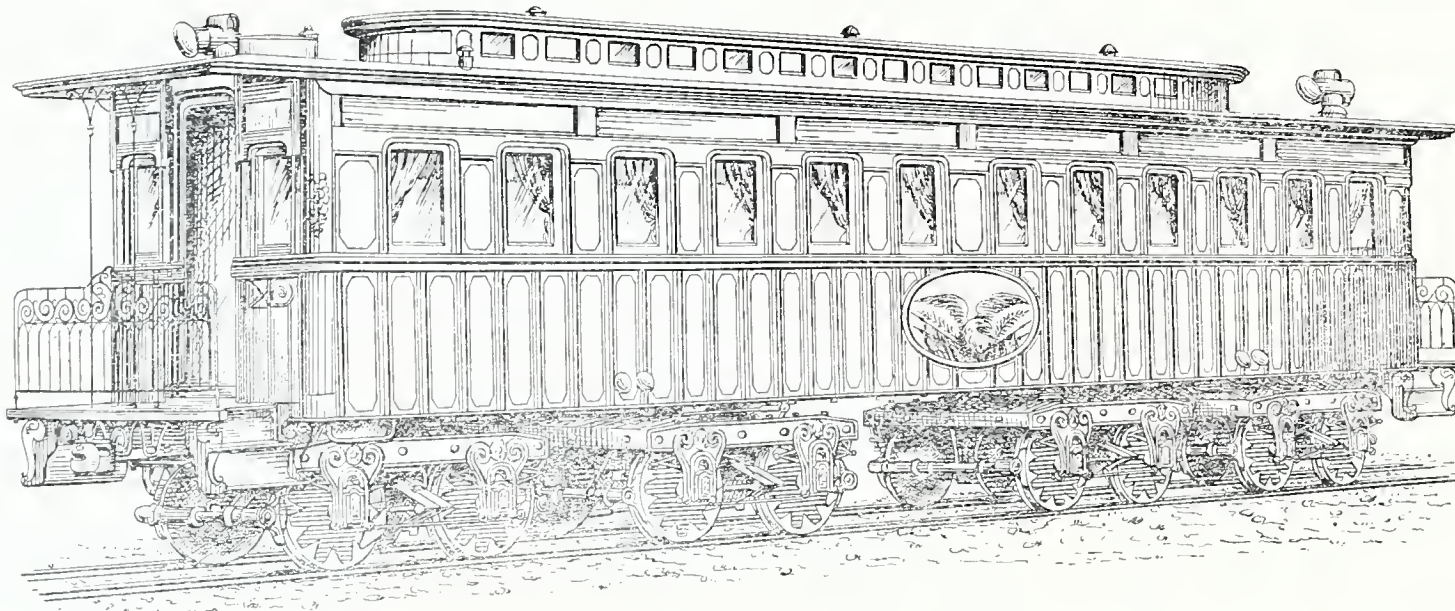
Evolution of the Railroad Car—The Lincoln Car—
The Proposed Presidential Train.

People who now enjoy the luxuries of travel in palace cars are apt to forget—many never stop to

and speed and comfort were still in the mirage of the future.

Through the kindness of the Railroad Car Journal we are enabled to present herewith interesting data and illustrations showing the contrast of the modern palace car and the highest type of 1864—

built especially for President Lincoln—the acme of the car-builders' art at that time. The Lincoln car is still in existence and will form an interesting feature of the railway exhibit at the forthcoming Trans-Mississippi and International Exposition at Omaha. This car has for years been located in



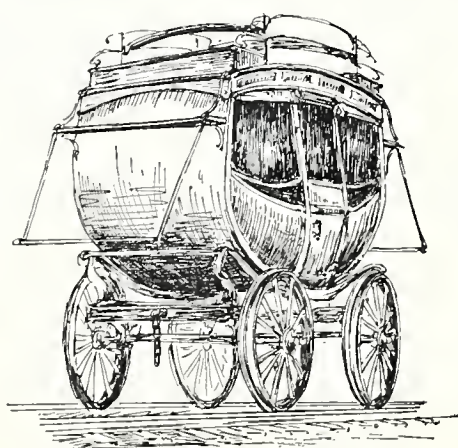
PRIVATE CAR BUILT FOR PRESIDENT LINCOLN IN 1864.



INTERIOR VIEWS OF A MODERN PALACE CAR.

think—that the comfortable railway coach is a modern institution and that the safety and pleasures of travel over the mountains and plains of this and foreign countries are due wholly to the inventive genius of the present century. It was only a little over three score years ago (1831) that the first steam railway train was run in this country on the short line between Albany and Schenectady. The coaches were of the concord type, as will be seen by a cut of the old type presented herewith, and the cost to build at the present time would not exceed \$100.

Not until the early '60's was any marked progress made in the mode of railway travel. Improvements had from time to time been made, but "private" cars and sleeping cars were practically unknown



AN EARLY STYLE.

an obscure corner of the Omaha yards of the Union Pacific car shops in Omaha and subjected to the ravages of time, and the elements. This car was built in the United States military shops at Alexandria, Va., in 1864, by B. P. Lamason, master car-builder, and was probably the handsomest railway coach in its day. This coach was 42 feet long and 8½ feet wide, and during the time Mr. Lincoln used it was divided into three compartments. It was entered by a door which opened into a narrow passageway extending the entire length of the car along one side. From the passageway doors opened into each of the three private rooms. The room in one end of the car was considerably longer than the others, and was furnished with a large sofa and

reclining chairs. The small rooms were also provided with sofa and reclining chairs, though somewhat inferior to those in the large room. This larger compartment constituted President Lincoln's office and study, and was where he entertained his guests and transacted business with officials of the government and generals of the army. The sofa was a combination affair, and was made of unusual length to accommodate the elongated form of the President. It was used as a sofa or lounge during the day and at night could be adjusted into a double bed.

The car was considered in that day a triumph of the car-builder's art. The walls of each of the com-

partments were padded with rich corded crimson silk upholstery, extending half way to the ceiling, and the frieze of the President's room was decorated with painted panels of the coats of arms of the different states of the union.

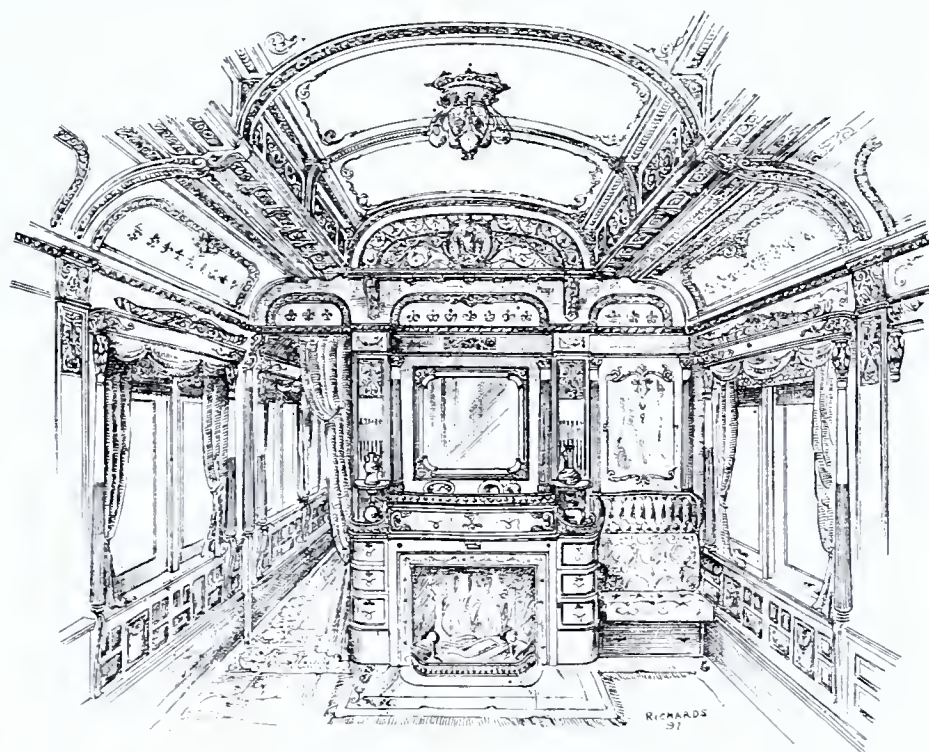
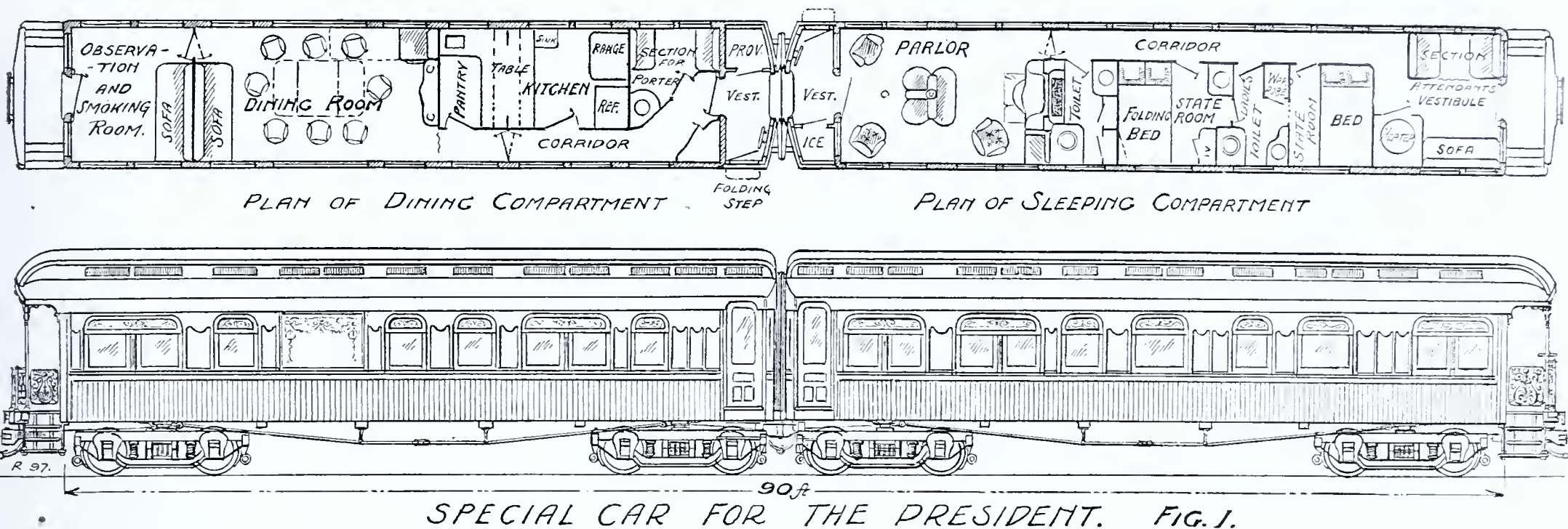
Just after the close of the war the government put a great amount of its railway material that had been used in the prosecution of the war into the hands of an auction firm in Cincinnati, and among

built for the President of the United States has been widely noticed by the press and has elicited much favorable comment. Up to 1860 only a few private cars had been built, and they were structures costing little, if any, more than the ordinary passenger car of that period. In the early sixties, when the late R. N. Rice was superintendent of the Michigan Central Railroad, the road then having less than 300 miles of track, he was regarded as one of the leading railroad men of the age. The wildest flight of fancy did not then picture 3,000 miles of road under one management, though today, twice, and even three times 3,000 miles of railroad are operated by one central source of direction.

In the subjugation of nature to man's uses, the material work of civilization, far greater progress has been made during the past sixty-five years than

A couple of interior views of the private car "Alexandria," are herewith presented. This is undoubtedly one of the finest ever built. It was built for President McLeod of the Philadelphia and Reading Railroad. Nothing which has so far been done, even for royalty, in the way of private cars, equals this one. It is not only a veritable palace on wheels, but was built in every part as strongly as iron, steel, bronze, and the best of woods could make it.

Diagrams and a perspective view of the proposed "Presidential" car are also presented in connection with this article, with suggestions by the architect, Mr. Archer Richards. The accompanying drawings illustrate a plan of dining and sleeping compartment capable of accommodating fourteen persons in all. A twin car, such as is here portrayed



INTERIOR VIEW OF PROPOSED PRESIDENTIAL CAR.

it was the Lincoln car. Sidney Dillon, who was then at the head of Union Pacific affairs, was directly responsible for its purchase.

This car is of especial interest at this time as constituting a precedent for the building of a presidential car, just now being agitated by the Railroad Car Journal. The historic interest attaching to it should insure its careful preservation as a relic of the martyred president, as well as a remarkable object in the development of the art of car building, and an appropriate resting place for it would be the transportation department of the Field-Columbian Museum at Chicago.

The Journal's suggestion that a private car be

age in a town founded in 1880 as the whole country possessed in 1830. Our country made 165,000 tons of pig iron in 1830, but during the past twelve months we have made ten million tons of such iron, or sixty times the amount first named. In 1830 the entire cotton crop of the world aggregated 1,590,000 bales of 400 pounds each, while the world's cotton crop for 1895 was eleven and a half times as much, though the world's population had increased between the two dates only 50 per cent or from 1,000 to 1,500 millions of persons. Up to July, 1836, our country had issued in all only 9,957 patents, and only 6,000 to the year 1830. The number we have issued since 1836 to date is 570,000, or 95 times 6,000.

in plan and elevation, possessing all the features of a single car, could be more economically operated than a long, heavy car of equal capacity.

It is proposed, as the diagram plainly indicates, that these twin cars shall contain every convenience known to modern home life—a veritable palace on wheels. One could travel the entire continent and not feel fatigued with such a restful resort at hand. The sleeping and toilet provisions are amply illustrated, and beyond the two staterooms and a place for attendants, there is left very little to be desired to insure the comfort of the occupants.

A perspective sketch of interior and elevations illustrate the style of interior suggested for the parlor finish. It is sufficiently severe and classical in outline, and with the emblems of the country could be made to appear quite national in its character. The carved details serve to enrich the broad surfaces and the handsome woods are not sufficiently covered to prevent their being shown off to advantage.

The scheme of the Railroad Car Journal to build a palatial presidential train ought to strike a popular chord.

The Steel Era in Car Construction.

An epoch-making incident in the history of railroad car construction is the contract recently awarded by the Pittsburg, Bessemer & Lake Erie Railroad to the Schoen Pressed Steel Company, of Pittsburg, for 600 steel hopper gondola cars of 100,000 pounds capacity. The details of construction of these cars were illustrated and described in the March number of Railroad Car Journal. They are to be built almost exclusively of standard rolled steel shapes made by the Carnegie Steel Company, by whose engineers the designs for the cars were prepared.

This large order marks the advent of a new era—that of the steel freight car—and the speedy substitution of metal for wood as the chief material for freight car construction. It also demonstrates the practicability of using standard commercial shapes of rolled steel for this purpose.

The latest novelty in the bicycle line consists in gearing the steering bar to the seat post, which is turned from side to side by the motion of the body, both the hands and feet being used to propel the wheel.

Electricity is used in tanning hides in a new process, the skins being hung on frames in a vat and the current passed through the liquid by means of electrodes placed on opposite sides of the vats parallel to the skins.

Advice to Poor Inventors.

Editor Inventive Age.

Since the publication of my article in the November issue of your paper, I have received numerous inquiries from inventors and others asking me to either recommend a few firms of honest patent attorneys and patent brokers, or else inform them how to distinguish the honest from the dishonest ones.

If you will kindly grant me the space I would like to answer these persons through the medium of your valuable journal, especially as my answer might prove serviceable to other inventors and readers.

There are many honest and skillful solicitors of patents throughout the United States, who will work faithfully to benefit their clients, but the number of dishonest and unreliable ones greatly predominate.

A bright inventor might discern one class from the other by a careful examination and perusal of their printed matter. The solicitor whose advertisements are neatly arranged without any boastful statements, but the wording of which approaches the subject in contemplation with a quiet assurance and firmness that entreates confidence, is the proper attorney to trust your work to regardless of his rate of charge, for price should only be a secondary consideration when you are securing the services of a patent solicitor. Then on the contrary when you observe attorneys who are all blow and bluster, who boast of their powers their special abilities, or cheapness, using a variety of catchy head-lines to draw attention, guaranteeing to procure a patent or accept no pay, promising to sell your patent for you if taken out through their agency, or stating their peculiar or special facilities for procuring patents quickly, have nothing whatever to do with them. It is your hard earned dollars they are after and your work would be either hurried or neglected.

You may depend on it, that class of attorneys spend more time and pains over the arrangement and wording of their advertising documents to catch victims, than they do over the victim's patent documents after they have caught him.

In operation, their method is exactly like baiting hooks to catch fish, (suckers if you like), and when one is caught they cast him aside before his hunger is satiated and use the same glittering bait over again to entice others.

There is a very noticeable difference in the formation and wording of advertisements gotten up by the two classes of attorneys, yet the cause which produces this dissimilarity of effect is quite apparent and easily understood.

The unreliable ones have to boast of themselves simply because their clients are not apt to do it for them, and they are obliged to resort to novel means to create new and interesting inducements in order to gain new victims each time, while on the other hand his honest rival relies more upon his established reputation and the recommendations of his well pleased patrons for the sustinment of his future patronage, and does not need to offer any special inducement except good honest servicable labor combined with the requisite knowledge and necessary skill.

Inventors should put but little faith in the printed testimonials and references given in circulars and booklets, for even the most corrupt and disreputable attorney must please an occasional client, and as they all have friends testimonials and references are very readily obtained when desired. Some attorneys obtain high references from congressmen, senators, governors, mayors and other officials merely through a personal acquaintance with them, while the parties who furnish these references, although they know the attorney, know nothing whatever concerning his private business or in what manner he conducts it. If the statement of any testimonial is to be relied on, some of those given by clients should be depended on rather than those from high officials or banks.

The principal difficulty met with by a poor inventor is the manner to dispose of his patent to advantage after he has obtained it. He knows it should be promoted at once and not remain idle, and that it must be brought to the notice of investors and speculators, for comparatively few patents sell themselves without some effort on the part of their owners. With the issue of his patent, the inventor's mail is at once deluged with the usual supply of corruption in the form of letters and circulars, replete with tempting offers, inducements, promises and agreements relative to the sale of his patent, each advertiser claiming to be the only true and honest one in that line of business, and each one jealously digging at the utter worthlessness of all other systems but his own. Each one however tells but half the truth, for in reality his own system is

as corrupt, or even worse perhaps, than those he speaks of so disparagingly.

A poor but honest inventor's brain will be almost turned by the various propositions made him and will be utterly puzzled to decide which is the most valuable(?) offer he has received. Those who have learned by personal experience would warn him to have nothing to do with any of those that require papers to be signed, or a fee to be paid in advance.

Inventors may rest assured of one fact, and that is, any patent selling agency, attorney, or broker that charges an advance fee for printing, advertising or any other purpose, expect to make their profit more from these advance fees than from any commission on possible sales. What if they do insert a few lines in some daily paper (where it is next thing to invisible) offering the patent for sale? The inventor could do far better himself if he spent a little money judiciously in the right direction.

Inventors should remember this rule: If your patent is valuable and a patent broker can sell it readily, so can you. If, however, it possesses no special merit, they cannot sell it. Neither can you. At any rate your prospects for selling are as good as theirs, and you will do better to retain the "advance fee" in your own possession or use it to your own advantage rather than theirs. Having but a single patent to promote you can give it better attention yourself than a patent broker would be apt to do with a thousand or more patents to look after, even if he was an honest one. Occasionally some broker will blow about the great patent sales he has recently effected through his special selling facilities, but he always neglects to mention the 999 sales he has failed to make through his inattention or inability.

What a patentee really needs is a list of addresses comprising speculators, capitalists and manufacturers who handle articles of a nature similar to his invention, so he may mail copies of his patent, terms, and a brief description of its merits, to the very persons who will become interested in his invention if anyone will. I claim that this simple little act is worth more to an inventor than \$20 spent in promiscuous advertising, and the ones to originate this clever method to assist their patrons, certainly deserve credit for their honest endeavor to mitigate the difficulties which at present check progress of poor inventors.

There are very few patent brokers and selling agencies that honestly strive to sell patents, and these few may be readily recognized by the fair principle of their system, offering to attempt sales of meritorious patents without requiring any advance fees. They must depend on the commission of probable sales for sustinment and therefore may possibly be of assistance to inventors who possess really valuable and saleable patents; and who ever heard of an inventor whose patent was not valuable? And just here lies a great fault with most inventors, that is they are apt to value their inventions too highly. They think because the device is ingeniously contrived that it must be very valuable, but such is not the case. The value of a patent rests mainly on the ones who promote it; thus, if a good active company market a comparatively worthless device it will become more profitable than a valuable invention in the hands of a poor company. Therefore let inventors remember that the real value of their devices depends entirely on the promoters, and if they cannot be promoted properly or sold to some company, they are entirely worthless from a commercial point of view, no matter how ingenious the invention may be.

I would advise inventors to never refuse a fair offer for their patents as they may never receive another. If you set a price on your patent and determine not to accept less you are liable to miss your only opportunity like hundreds of inventors have already done.

ERNEST LAWRENCE.

The Monkey Pest.

Great devastation is being wrought in both Japan and China by immense bands of monkeys, which have been driven from forests and ravines by the unusually cold weather and heavy snows. Being deprived of the usual means of subsisting on berries and roots the starving monkeys are ravaging outlying mountain districts and devouring crops. Everything green is quickly eaten and then the hordes of apes press farther into the settlements.

When the monkeys first came down two Chinese tea-pickers were attacked and killed by the hunger maddened creatures. Since then numerous cases of the killing of people living in isolated places have been reported, being caused, apparently by their efforts to subdue the intruders or protect their property. In such cases monkeys by dozens would attack men and kill them. Such devastation wrought by monkeys was unknown to the Japanese, though their legends hint at such occurrences centuries ago. Villagers have been preparing for revenge and by this time organized monkey hunts are in progress in both empires. The local governments are also rendering aid.

Sop to Cerberus.

It has become a fashion with too many of us to condone with the devil rather than give him a kick. Bouquets in that quarter are more acceptable than broomsticks. Many of our social and industrial problems and burdens would starve to death if we stopped their spoon diet. It is that kind of nutrition that keeps many of them fat and kicking. We prate about the nuisance, but deny the broom. Perhaps there never was a time in the history of man when his troubles and wrongs were so vigorously denounced and so freely exposed. We rake them out of the mud and pull them down from the stars. Everybody has a knowledge of one or more of these cobwebs, in which some of us are flies and some of us are spiders, and everybody presumably has his special broom to assist in the house-cleaning. If wagging the tongue and dipping pens in ink could save the world, the means of doing so are certainly on hand. So far so good, but talk is one thing and practice another thing. It is one thing to run a wind mill and another to grind grist. Nothing is so cheap as talk, and nothing so deceptive as opinion. What we want is less tongue and more fingers. Convictions as to right or wrong are not so well defined or sharply cut as they might be. To tell the truth, we have more heads in the world than honest convictions. In the matter of opinions, we are suffering from mixed drinks. We have too many of them. They can be had by the dozen as eggs are at Easter. Some of us are stocking up with borrowed opinions all the time. They are gratis and innumerable. We hear and forget, and read and go so silly. Men can be found by the gross who have no convictions on anything, and are as innocent of decision as a jelly-fish is of bones. It is this vague and nebulous condition of knowing too much or not knowing enough that accounts for so many of our social and industrial evils, continuing to punish us like an angry hornet, and tap our vitality as a leech does our veins. Hence the glib tongue and the impotent hand. What the steel-tip on a plowshare is to tangled grass and stubborn clay, personal conviction is to the removal of wrongs and the success of reforms. Men may be excited by harangues, and their passions let loose by demagogic diatribes. They may be stirred up like the lurid lava in the thorax of Vesuvius, and the growl of discontent like that of a lion in an African solitude, but the end thereof, so far as practical reform goes, may be practically nothing. Intelligent conviction is the only stone in the sling that can reach the forehead of Goliath. History is full of explosions, of which nothing is left but the wadding. There is not an evil on the face of the earth that has not had a mob at its heels, but the force that brought it to its knees was not clamour but conviction. When men are convinced as to the causes and nature of a wrong, the axe is laid at the root of the tree, but when they do nothing but lop the branches and fertilize the roots, the same old evil continues to work its mischief. When we denounce strikes as industrial jingosim, and complain on the housetops our horror of starving men and silent mills, we do well, but when we provide a brass band, public banquets and a sky full of caps for men or men who acted as Sachems for the Mohawks, and congratulate jingos for success in opposing arbitration, we practically blockade the road of reform. When we denounce the coercion of labor by capital and set about coercing capital by labor, we are simply dethroning one Czar to find a sceptre for another. When we demand a more equitable distribution of the profits of labor and the heritage of the race in common, our hands are bravely held out to regain a stolen sheaf, but when we lampoon co-operation and profit sharing, and personally dodge our boarding bills, underpay the widow who washes our socks, and drive hard bargains with the man who paints the fence, or saws the wood, we are simply putting lead into the wolf and milk into its cubs. When we beat the tocsin in a crusade against corrupt aldermen and boodle-hunting politicians, and close the great comedy by voting for a scoundrel who buys our vote with a promise of a public plum, we are simply giving sop to Cerberus. Society can never right a wrong unless it rights itself. It is no use killing cats so long as we suckle kittens.—*Age of Steel.*

Horseless Carriages.

It seems now that the electric automobile vehicle has reached that point of perfection which marks the line of demarcation between experiment and commercial practicability. Within a few weeks electric hansomns have been put in operation in New York City, in competition with horse-vehicles, for public service, and have achieved a great and immediate popularity.

Prosperity Sure to Come.

There was more progress made in this country in manufacturing, agriculture and learning between 1861 and 1893 than in the 200 years preceeding. The year 1892 was the most prosperous one this nation has ever had and 1893 was the most disastrous in all lines of business.

Prosperity and a republican administration and disaster and democratic administration are coincident, not because one is republican and the other democratic, but because one administers the government along lines of Americanism and the other along lines of Angloism.

This policy of the democratic party is a legacy from its early statesmen from the south who always dominated the party and represented the slave holders' interest of that section. There was no incentive to the slave to produce more for he had no share in the product. There was no incentive for the master to produce more because he had sufficient for his needs and civilization. Slave labor can never become skilled and can be employed only in agricultural pursuits of the crudest kind. The policy of Angloism would naturally result in making this a nation of farmers, herders and haberdashers.

The incentive to invention and increased production is always the desire for ownership and gain, and without this one generation follows in the footsteps of the preceeding, neither advancing nor falling behind it.

Three items are always necessary to production; land, labor and capital, without any one of which nothing can be produced, but labor alone is the measure of the value of the article produced, for labor produces everything except land. It therefore necessarily follows that when the labor of a nation is well employed and well paid, the nation is prosperous, but when labor is idle all things else are unproductive and idle and values fall.

In the light of history what further argument is required to reassure us of the returning to prosperity than to recall that the republican party assumed control of the government and inaugurated the American policy in 1861 and that the democratic party returned to power in 1893, and returned to the Anglo policy.

All articles of commerce are but labor, and when purchased the price paid is compensation to the laborer who produced it, and the nation consuming the articles of other countries, which do not buy our farm products, those other countries are richer in the amount paid by us to them and we are poorer in the same amount. If a farmer can sell only a part of the product of his farm the rest becomes worthless, and if he is obliged to pay more than he receives for what he needs, he will inevitably become bankrupt and it is equally so of a nation.

The same quantity of products brought \$10,000,000 less to the farmers of Minnesota in 1895 than in 1892 and in 1895 there were 4,000,000 laborers idle in this country. If this is true it is not easy to discover the road leading to prosperity? The explanation is simple. We bought the articles produced in other countries and the producers did not buy our farm products and our laborers were idle and prices ranged low and the use for money was equally reduced and it became idle and scarce.

Money is but a commodity and is bought by the farmer's wheat or the mechanic's labor, and if the price of these are reduced they purchase less of the former, and it accordingly becomes scarcer, and is hoarded by the owners of it, because it is unnecessary for them to part with it for what they need.

The price of everything is regulated by the law of supply and demand, and plenty of employment and few laborers produces high wages and high-priced articles.

We must raise the crop before we can market it, but the idle money will be paid to the idle laborers and his product will be exchanged for the farmer's product and the wheels of commerce set going once more. This is prosperity. It cannot come in an hour, but come it will, as certain as the sun shall rise again. We have everything with which to go

forward with—business, skilled labor, raw material,—factories and under protection a market and reciprocity to follow.

Let us with patience hail the prospect and let not those who would tear down our industrial and commercial system discourage by their calumny the hope that facts assure.

A Single Rail Railroad.

M. Cailletet, a French engineer, has recently devised a cheap single-rail road for light traffic which can be easily removed from place to place. The permanent way of this system consists of a single flat-footed rail of very light section, to which are attached at short intervals flat sole-plates or sleepers, in each side of which holes are formed for the passage of a pin that can be driven into the ground to hold them in place; the rail joints are made by fish-plates surrounding the base of the rail. The vehicles running upon this rail are of various forms, according to the service for which they are required; they may be flat platform wagons or small omnibuses, ambulances, or box wagons. For the most part they are supported on four wheels, the tires of which are grooved to fit the contour of the rail; these wheels, which run in bearings on the underframe of the vehicle, may either extend beyond it at each end or be placed beneath the body of the carriage. Obviously such a vehicle, especially when loaded, could not be maintained in equilibrium, and it is in overcoming this difficulty that the invention of M. Cailletet chiefly consists. Projecting from one side of the vehicle are two rods, or a light frame, the former being required when only manual labor is employed, the latter when horse power is used for propelling the vehicle. Assuming that the carriage could be so accurately loaded that its balance upon the rail would be perfect, it is clear that no effort, except that required for propelling the carriage, would have to be exerted either by men or animals.

New Cement Compound.

A new kind of cement compound has been devised by Prof. W. L. Woods, a Washington chemist, and which, he states, is capable of satisfactory use for various purposes of house construction and decoration. As described, it is a metalloid in its nature, the bases of it being magnesite and rock crystal, these, with other elements, being finely powdered and placed in a crucible, subjected to a heat of about 60 degrees, and the substances which are used to produce the various effects are added in the crucible. The liquid resulting, which is of about the consistency of molasses, on being poured into moulds, cools almost instantly, and, expanding, fills every portion of the pattern completely, the natural color of the substance when cool being like that of soapstone. The plastic and its concretes will withstand all natural thermal changes, and may be used in any place and for any purpose where it is not subjected to combustive heat. It is exceedingly hard, but yields to the file and other steel instruments, is water-proof, and resists all acids to the degree in which they are used in the arts, and, withstanding as it does all the ravages of the elements, is practically imperishable. The specific gravity of the material can be varied in degree—hard or soft—by the filler used.

A Magnetic Island.

The stories of magnetic mountains that exert an attraction that can not be withstood on all vessels that come into their vicinity have some foundation in reality, says the *Literary Digest*, and that, too, in the neighborhood of Germany. The well known island of Bornholm, situated in the Baltic and belonging to Denmark, may be regarded as a huge magnet. Although the power of this magnet is not so great that it can draw the nails out of ships, as was told of the legendary magnetic hills, the magnetism of the rocks on the island of Bornholm can cause a good deal of trouble to ships in quite another way. For the island of Bornholm exerts such an influence on the magnetic needle that it can cause a vessel to turn perceptibly aside from its course. This is quite possible, as the effect of this magnetic island is perceptible at a distance of 15 kilometres (nine and one-half miles). A rocky reef near Bornholm is also made of the same magnetic substance.

Crutches which can be arranged for either summer or winter use have a rod running down through the center of the lower end of the crutch which can be projected below the rubber point whenever the ground becomes slippery, and withdrawn when it is desired to use the rubber tip.

Patent Office Rule Sustained.

The United States Supreme Court has handed down a decision by Chief Justice Fuller which has the effect of sustaining the six-months' rule of the patent office. The decision was rendered in the case of Hein against the Court of appeals of the District of Columbia. Hein applied for a writ of mandamus to compel the Court of Appeals to hear and decide an appeal taken more than forty days from the decision of the commissioner of patents, the forty-days rule being one of the court rules of the Court of Appeals. Hein claimed that he had two years in which to take this appeal and that this time limit was provided for in the Revised Statutes. He claimed that the court rule was contrary to the statutes, and consequently invalid, and prayed for the writ of mandamus to set the decision of the court aside. The Supreme Court decided, however, that the court rule was valid, and this has the effect of practically establishing the patent office rule limiting the appeals which can be taken from one tribunal in the office to another to six months. William H. Singleton and F. W. Ritter appeared for Hein, the petitioner, and W. A. Megrath, law clerk of the patent office, argued the case for the Court of Appeals and the patent office.

The New Patent Act.

Points in the new patent act that inventors should keep in mind:

The patenting abroad by other parties, or the publishing of the invention in any country more than two years prior to the application for an American patent, is fatal to the latter. So is the public use or sale or the invention in America more than two years prior to the application for a patent there, unless it be proved that such use was abandoned by the applicant or his representatives.

The application on an invention patented abroad must be filed within seven months of the earliest foreign application; the patent will then be granted for seventeen years. If the application be not filed within that time the patent (if granted) will be void.

A patent application refused by an Examiner must be amended or the refusal appealed against within a year of such refusal, otherwise the refusal will become final (hitherto the law gave two years which the patent office of late arbitrarily shortened in practice to six months).

Similarly an application filed in an incomplete state must be completed within a year, or will be held to be abandoned.

The statute of limitations (6 years) shall apply to infringements of patents. These acts, except this last previous clause, shall not be operative on any patent applied for before January 1st, 1898.

Heated and Cooled By Water.

A German inventor has built a house, whose advantages are a constant temperature, and, incidentally, strength, comfort and beauty. He first set up a frame of water tubing, allowing continuous circulation to a stream of water. Around this frame he put up his house in the ordinary way. The peculiarity is that all floors and ceilings are crossed and recrossed by water pipes. The water, having passed through the horizontal tubes of the floors and ceilings, passes through the vertical tubes of the wall, and thence back to the source. In summer fresh, cool water circulates through the network of tubes, cools off the walls and, after having run its course, flows out considerably warmer than when it entered. In its course it absorbs much heat, which it carries away. During the winter the water is first heated to nearly one hundred degrees, and then forced through the tubes. Much of the heat is thus left all over the house, while at the outlet the temperature of the water is about 40 degrees. The speed of circulation may be regulated so as to maintain a steady temperature.

New Atlantic Cable.

The Compagnie Francaise du Telegraphe de Paris a New York, better known as the French Cable Company, has decided to lay another submarine cable between Brest and New York. The new cable, it is stated, will be the longest in the world—almost 3250 nautical miles. The core is being made at Bezons, France, and the cable will be sheathed and finished at Calais. In the construction of the conductor, which will be stranded, 2,149,485 pounds of copper will be required. This will be incased in 1,859,000 pounds of raw gutta percha. To lay this great cable, four of the largest cable steamers will be utilized, and it is expected that the work will be completed during the coming summer.

Yale-Weston "Triplex" Chain Pulley Block.

When the Triplex Chain Block was first introduced a report was published of tests made by Prof. R. H. Thurston, of Cornell University, to determine the relative "mechanical efficiency" of the various types of chain blocks in use, which disclosed the remarkable fact that while the efficiency of seven other types ranged from 18.9 per cent. to 32 per cent (the Weston Differential Block being one of the highest) the Triplex Spur-Gear block developed an efficiency of 79.5 per cent. or nearly threefold the average of other blocks.

This surprising result, since abundantly confirmed by experience, makes the Triplex block greatly more economical in use than any other wherever the use is frequent and economy of time or labor is material. So marked is this difference that in numerous cases large numbers of other blocks have been discarded and replaced by a new equipment of Triplex blocks, the outlay thus incurred being recouped by the resulting economy within a year or two, and in some cases within six months.

In order to meet the demand for blocks of large capacity and having high efficiency two new sizes of the Triplex block have recently been produced

Still greater compactness and from 18 to 20 inches additional headroom can be obtained by omitting the upper hook and crosshead and building the block into the trolley of a hand crane or overhead tramrail system.

A most important advantage arises from the fact that either or both of the two hoists may be operated simultaneously or independently. The full load may be raised by two men pulling together on the hand chain of one hoist, or at double speed by four men, two on each hoist. In like manner lowering may be effected at varying speeds by using either or both of the hoists. The location of the hoists at the outer ends of the yoke brings the two hand chains somewhat clear of the load and in the most convenient position for effective use.

This ingenious application of the Triplex system adapts it to the largest loads for which portable hoists are usually required, and by reason of the duplication of the hoisting mechanism enables the full power of four men to be utilized either in lifting the maximum load at normal speed, or lighter loads at great speed, whereas all other large hoists have heretofore had but a single hand chain, on which it is not possible to utilize effectively the power of more than two or at the most three men. The 16 and 20 ton Triplex blocks are now ready and being furnished by the Yale & Towne Mfg. Co., of New York City.

Annual Report of Bell Telephone Company.

The report of the American Bell Telephone Company, for the year ended December 31, 1896, was presented at the meeting held in Boston on March 30.

Not less than 7500 miles of new toll line, carrying 53,000 miles of toll wire, have been constructed within the year, making the total length of wire employed for this purpose upward of 268,000 miles. Within four years the mileage of toll line has been doubled. In the Long Distance Company's system there were on January 1, 1897, in operation 7344 miles of toll lines and cables and 107,409 miles of wire connecting 183 offices, an increase during the year of 1543.20 miles of toll line and cables, 17,048 miles of wire and 34 offices. Companies operating under license expended during the year \$8,275,929 for new construction, to which amount is to be added an expenditure of \$1,160,929 for land and buildings.

The Long Distance Company have invested up to December 31, 1896, in land, construction, franchises, equipment and supplies, \$13,187,299. The company show an increase in gross earnings in 1896 over 1895 of 20.6 per cent, the 1896 gross being \$1,599,589. President Hudson draws an interesting comparison of the telephone system of Switzerland, and that in use in the state of Massachusetts. Switzerland's population is 475,000 greater than that of Massachusetts. At the close of 1895, Switzerland had 23-446 telephone exchange stations. Massachusetts had 23,390. Each subscriber in Massachusetts averages 2500 calls per year, while in Switzerland the average is 530 per year.

Prospects of Trade with China.

The industrial revolution which has been taking place in China of late years, and which has received a renewed stimulus since the war with Japan, seems to open up possibilities of a profitable trade with the Empire in the line of American machinery and materials. In a report just received at the State Department at Washington, United States Consul Sheridan Read, at Tien-Tsin, gives an account of a visit to Tongshan, 80 miles from Tien-Tsin, where the Chinese have established extensive car works, employing 600 men and building the rolling stock for the Tien-Tsin railroad extension. Only axles, wheels, spring and couplers are imported. The Consul says he was surprised at the excellence of the finish of the new passenger cars. He advises American manufacturers to send catalogues and price lists to the engineer in chief of the imperial railways at Tongshan. Makers of planing and saw mill machinery should be especially on the alert, he says, for this trade. At the same place the Chinese Engineering & Mining Company are taking out 2000 tons of coal daily, and as extensive enlargements of the plant are to be made there is another opportunity for American manufacturers of mining machinery to place there goods. Mr. Read further gives notice that as the result of several big fires the Tien-Tsin authorities are considering the question of procuring fire engines for the British concession, and American price lists might be of service.

An automatic tension device for wire fences consists of a number of springs fastened to the ends of the wires, the ends of the springs being attached to a well braced post at the end of the fence.

United States Engineers As Builders.

It is an interesting fact that the National Library Building (Washington, D. C.), which is by far the most beautiful public edifice in America, and is considered one of the finest if not the finest modern structure in the world, cost less than any building ever erected by the government of the United States in proportion to its size. It cost a little more than \$6,000,000 of which \$1,000,000 was spent in decorations paintings, frescoes, carvings, bronze doors, stained glass, marble and bronze statuary, mosaic work, etc., which were not necessary, but were simply intended for ornament. Notwithstanding this fact, the entire cost of the building was only 60 cents per cubic foot, while the cost of the State, War and Navy Departments, which was the last great building previously erected in Washington, was \$1.10 per cubic foot; the City Hall in Philadelphia \$1.56 per cubic foot, and the Capitol at Albany \$1.80 per cubic foot. If the ornamentation of the new Library had been omitted, the cost of the building would have been only about 50 cents per cubic foot—less than any other public structure in the country. The plans were produced by competition. The contracts for the entire building were made in a lump, instead of annually, as is usually the case with government work. The lowest bids as a rule were not accepted, but the awards were left to the discretion of the superintendent of construction, who sought to obtain the best results, without considering economy, alone. Gen. Thomas L. Casey, of the engineer corps, was superintendent as long as he lived, and was succeeded by Capt. Bernard G. Green. These two officers erected the Washington monument.—*American Contractor*.

An American Vessel 133 Years Old.

The bark True Love, built in Philadelphia in 1764, has been found upon search to be yet afloat in the capacity of a coal hulk, engaged in active trade at the age of 133 years. This discovery was made through a casualty recorded in the Maritime Exchange.

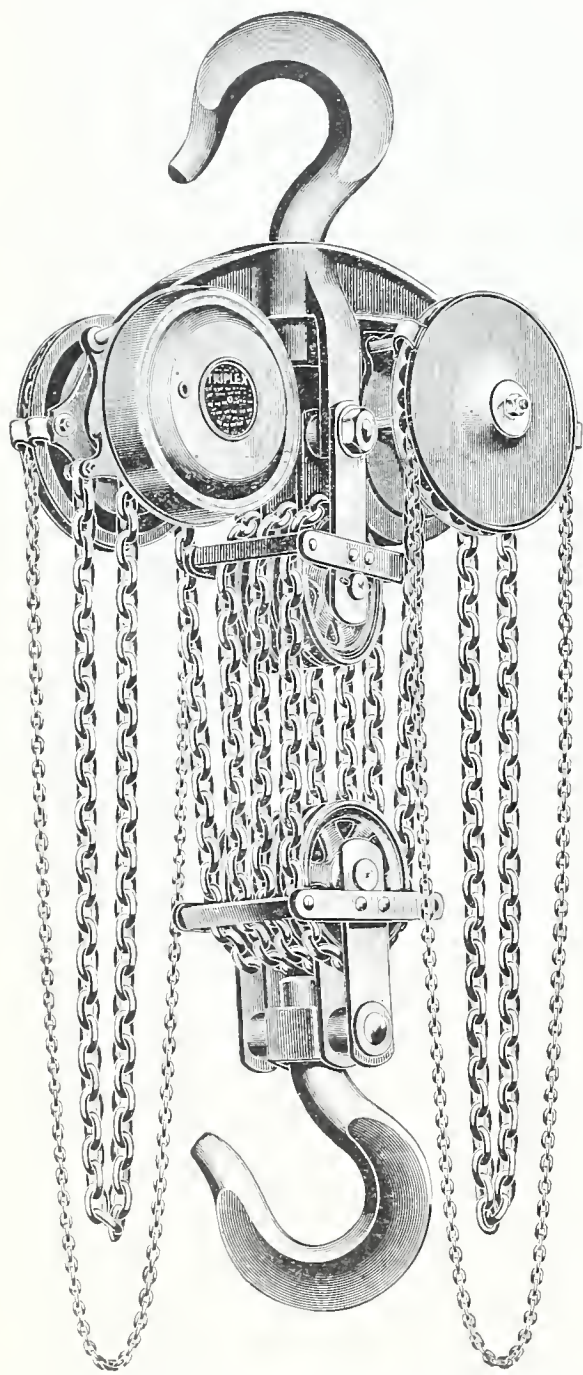
In 1764, when the famous old craft was launched on the banks of the Delaware, although her length was but 96 ft. 8 in., she was then the largest vessel of commerce that the Delaware had ever floated. Contrast this with the dimensions of the huge Hamburg-American Packet Company's steamship Pennsylvania, the latest addition to commerce, whose length is 587 ft., while the new White Star liner building is 704 ft. long, and one will be amazed with the magnitude of the modern ship of commerce. The True Love, upon being completed sailed away from Philadelphia early in 1765, and no record is had of her return to this city until August 22, 1873, when at the age of 109 years she came into port from Ivigut, Greenland, with a cargo of kryolite, in command of Capt. Thomas Nathaniel, consigned to B. Crowley. She was discharged here and surveyed by the American Lloyds in October, 1873, and sailed away never to return again. Upon her arrival shortly afterward in London she was sold and turned into a coal hulk, in which capacity she still serves.

The dimensions of this famous True Love are length, 96 ft. 8 in.; beam, 26 ft. 9 in.; depth of hold, 17 ft. She measured 296 tons register, and, like all old craft, carried very little more cargo.

The discovery that there was still afloat a Philadelphia-built vessel of such an age has caused much comment on the floors of the Maritime Exchange, and some shipping men are of the opinion that this old craft should, if possible, be purchased as a relic. Records show that the True Love was for a time owned in Hull, England, by G. Dahl, previous to her purchase by John S. Ward, of London, and during that time she was engaged in the Baltic trade.—*Philadelphia Press*.

An Important Invention.

D. McLaughlin Therrell, electrician for the Postal Telegraph Co., with headquarters at Atlanta, claims to have perfected a contrivance by which sounds can be transmitted to a much greater distance than by the present method. It is a long distance telephone on an improved scale. At a recent trial in Atlanta, sounds were heard, which it is claimed, were transmitted through a resistance equal to that encountered in a distance of 12,000 miles on an ordinary circuit. Those who were present heard vocal music clearly through the receiver. Mr. Therrell states that he overcomes the distance by increasing the power of the transmitter and by using repeaters which magnify the sound or reinforce it at intervals on the line. It is claimed that messages may be telephoned across the ocean by means of Mr. Therrell's system, for which patents have been applied.

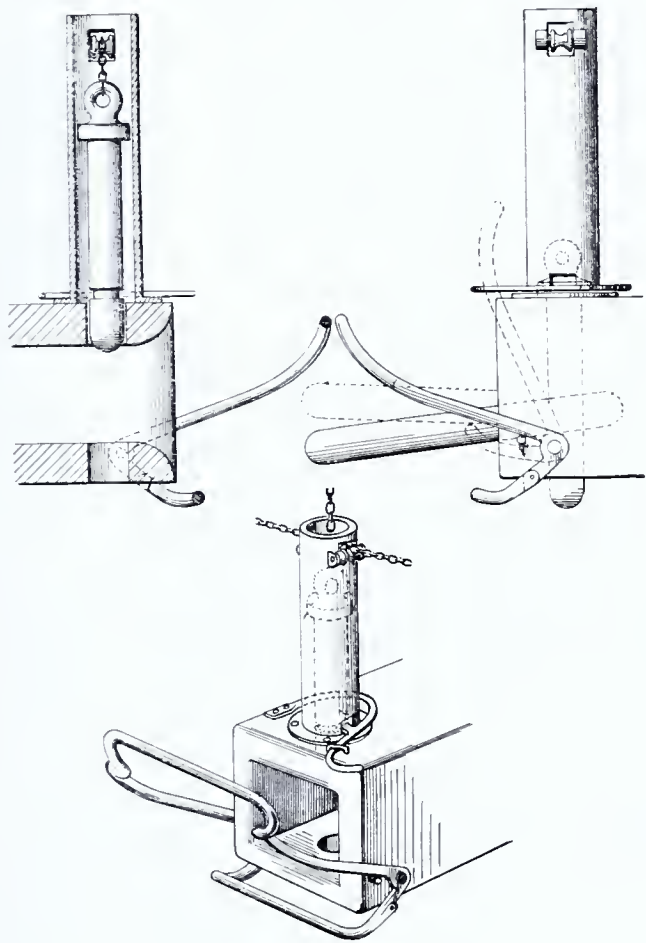


capable respectively of handling loads of 16 and 20 tons. The illustration herewith shows the design of these blocks. The construction consists in placing a yoke on the upper hook, each end of this yoke carrying a Triplex mechanism of two tons capacity and each mechanism being operated by an independent handchain. The two slack ends of the hoisting chain are attached respectively to the two Triplex hoists. The first loop of this chain then passes around the driving sheave in each hoist and thence over two sets of intermediate sheaves one set carried in the frame of the bottom hook and the other set in the frame connected directly with the shank of the upper hooks. The number of parts of chain is such that the maximum load on each part does not exceed two tons. In like manner the maximum load on each hoist is limited to two tons, and this is the limit of load carried by each arm of the yoke. All the remainder of the load is suspended directly from the shank of the upper hook. This construction admits of greater compactness and occupies less headroom than any heretofore devised.

Successful Car-Coupler.

Inventive genius has been at work for years on various forms of car-couplers and thousands of patents have been applied for and granted in this class. The latest, and it is believed the simplest and most successful coupling device, has been invented by Mr. Charles V. Richey of Washington, D. C., and patented through the well known patent attorney, James L. Norris of this city. Mr. Richey is a former resident of Atlanta, Ga., and the inventor of several useful and important inventions.

During the past two years he has devoted his attention to the study of all existing car-coupling devices with a view of originating something new and practical in that line. The coupler illustrated herewith is the result. Three cardinal vir-



tues are claimed for this coupler—simplicity, safety, durability. This invention comprises certain improved attachments adapted for easy application to all ordinary drawheads of the pin and link type. A spring latch is provided for engaging an annular or circumferential groove in a vertically guided coupling pin, to hold the pin in an elevated or temporarily inoperative position. Another attachment is an upward and forwardly projecting lower mechanism so arranged as to be operated automatically by contact with an opposing drawhead and to thereby elevate a link-lifter for supporting in a properly elevated position a link that is already engaged by a pin in one of the drawheads, while the further automatic operation of a corresponding lever on the opposite drawhead will trip the spring-latch from its engagement with the elevated coupling pin of that drawhead and permit it to drop into engagement with the link.

The simplicity of the device will be appreciated by all, especially by railroad men, whose particular attention the inventor desires to enlist. The practicability of the invention has already been demonstrated and Mr. Richey, who has associated with him, several gentlemen, prominent in banking circles in Washington, is now desirous of popularizing its use on all railroads on terms advantageous to himself and the railroad companies. The address of the inventor is Charles Richey, care of Capitol Savings Bank, Washington, D. C.

Against The Western Electric Co.

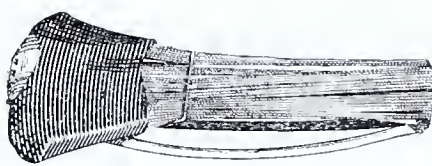
In the United States District Court at Chicago judge Grosscup, on the 5th instant, handed down a decision in favor of the Western Telephone Construction Company in the suit brought by the Western Electric Company in October, 1895, alleging infringement of the famous Roosevelt switch, patent No. 215,837, May 27, 1879, under which the Bell company is said to have paid during the life of the patent some \$35,000 in royalties to the Roosevelt heirs. The court's decision was subsequently withdrawn for the purpose of revision as to its phraseology. The court held, in effect, that the Roosevelt device was a purely automatic switch; that is, a switch which would operate, without any intent of the

operator, to make a change in the circuits, while the defendants' switch, which is identical with the Watson device (the patent on which was declared invalid on February 10 last), was not entirely automatic.

A Perfect Bicycle Saddle at Last.

Not long ago a bicycle rider, prominent in racing circles, in response to a query as to the relative merits of bicycles of standard makes, remarked: "None are of great merit because of the absence of a perfect saddle." Realizing the fact that the development of the saddle has not kept pace with that of the bicycle, or even with sundry attachments, Mr. H. C. Phillips son of ex-congressmen Phillips of Pennsylvania, last fall began experimenting and as a result of the inventor's genius and perseverance there is now on the market what has been demonstrated to be the most perfect bicycle saddle in use. The introduction comes rather late in the season but the popularity must be rapid and permanent.

A cut of the simple mechanism is herewith presented. The saddle lacks all the objectionable features of other saddles. No riveting or screws, no leather drawn between pommel and cantle to stretch and lose its shape. No tools of any kind required. No unsatisfactory adjusting bolt. This saddle is made of one continuous cord, looped about a pommel and cantle, and it will retain its shape under every and all conditions. There is nothing to wear



out that cannot be speedily supplied at a trifling cost. A sliding loop changes the width and shape of saddle to the liking of the rider. The adjusting of the rods to form a universal joint at the center of the cantle—thus giving the saddle a motion corresponding to the natural action of the limbs in pedaling—is a crowning feature in this invention. All danger of chaffing is eliminated and the rider is gracefully poised and given a freedom of action from head to foot that the easy and comfortable driving of a bicycle requires. As there is no riveting, the saddle is perfectly flexible throughout, yielding exactly to the human anatomy, and each cord on top of the saddle has returning strand beneath, with a free action over the cantle, so the extent of the saddle's flexibility is measured by twice its length.

The rear of the saddle is covered with leather, that is removable and the saddle can be used without it if desired. Three sizes are made—large, medium and small sizes, and ladies' design.

The manufactory is located in Butler, Pa., and patents on the saddle are pending in this and all important foreign countries.

A Presidential Car.

The Railroad Car Journal, the representative publication of the car-building industry, has originated a project to build a private car for the use of the President of the United States, from material and appliances contributed for the purpose by the car-building and affiliated industries. It is proposed to construct a private car excelling anything of this kind which has been done before in the substantial character of its construction and in the completeness and convenience of its furnishings and decorations.

The projected car will be a complete exposition of the art of car building, demonstrating to the world the surpassing excellence of this industry in the United States; and it is to be presented to the nation, as a tribute from the car-building fraternity, for the personal and official use of the successive Presidents of the United States.

The designs and specifications for the car are being prepared by the Railroad Car Journal, under the supervision of a committee of twenty-five prominent and representative Master Car-Builders and Superintendents of Motive Power of various railroads, thus insuring the end that the proposed car shall represent the skill, ingenuity and experience of the American car builder.

For the purpose of preventing scarfpins from coming out, a handy new device is composed of a small piece of wire coiled into a spring and attached to a chain or cord to the tie, the pin being pressed into the end of the coil.

For the prevention of stealing liquids from barrels by attendants in a store a new faucet has an automatic measuring, registering and recording device, which will show the amount drawn from a barrel, the mechanism being locked in a metal case, to prevent tampering with it.

Electrical Aerial Torpedo.

An instrument of torture which admits of no defense has been invented, according to a Des Moines newspaper, by an electrical engineer of that city. It consists of an electrical aerial torpedo.

The torpedo consists of a small sized gas filled balloon similar in shape to the hot air balloons used on the Fourth of July and capable of sustaining any length of time a dynamite case weighing from thirty to forty pounds at an elevation of from three hundred to one thousand feet above the earth.

Inside of the lower, or small, end of the balloon is placed a small cylinder, which contains a simple electrical device, the purpose of which is to regulate the length of time the balloon remains in the air, and also to ignite the gas in the balloon at a stated period, thus causing the balloon portion of the aerial torpedo to explode and drop the contents of the dynamite case. The contents falling upon any hard surface like the earth or a walled embankment would result in the destruction of whatever was in that locality.

In action the management of the torpedo is described as very easy and simple, the inventor stating that a corporal's guard can with it accomplish what would require a large force to do by the methods now employed in scattering large bodies of troops or the siege of cities. To use the torpedo effectively all that is necessary is to approach as near as possible the locality where the torpedo is desired to take effect, a reasonable distance being from four to six miles, then ascertain the direction of the lower air current and the velocity of same per hour.

This being ascertained, the electrical device is set for the length of time it would take the air current to carry the torpedo over the objective point. The balloon part is then inflated and the torpedo released to carry out its work of destruction.

The torpedo complete is small and compact and large numbers can be carried by a few men. The gas to inflate the balloon is carried in light steel bottles, gas being compressed in one bottle to inflate a large number of aerial torpedoes.

One of the advantages in the use of these torpedoes in time of war is that no possible defense can be made against them, and that a few men can send on their mission of destruction a large number of torpedoes within a very short time with very little danger or expense to themselves. This fact alone would cause serious consideration of terms of surrender by the proper authorities in a besieged city or encampment, they realizing that under the cover of darkness in one night the whole locality could be laid waste by the use of the aerial torpedoes.

News Notes.

Just think of it—a building boom in England this year and a famine in brick.

Frank W. Palmer of Chicago, editor of the Industrial World, has been appointed by President McKinley to the position of Public Printer, at Washington.

During the first eight months of the fiscal year ending February 28 there were exported from this country 70,383 gross tons of steel, rails 7685 net tons of cut nails, 3848 net tons of wire nails, 33,709 net tons of wire and 19,597 net tons of billets and rods.

In a preliminary run off New England coast the new battle ship "Iowa" made an excellent showing in regard to speed qualities, accomplishing over 17 knots an hour under favorable weather conditions. Her contract calls for a minimum speed of 16 knots.

A New York City firm have recently received an order for the new silver coinage of the Republic of San Domingo. The order consists of 1,725,000 silver coins. This is stated to be one of the first coinage orders ever placed by a foreign country here, such contracts usually having been made with European firms heretofore.

The Department of Agriculture, in a statement just issued, reports that 15,800 square miles of agricultural lands were in a submerged condition in the Mississippi Valley, South of Cairo, Ill., on April 6. The flooded region contains, it is estimated, about 39,500 farms, with a cultivated area of 3,800,000 acres. Their total value, with improvements, farm implements, etc., is placed at about \$65,000,000.

The National Harrow Company of Utica, N. Y., have filed, in the United States Circuit Court at that place, bills of complaint in 45 cases of alleged patent infringement in connection with the spring tooth harrow manufacturing industry. The defendants are principally dealers in various parts of the state of New York. The company claim that these dealers should pay damages for every spring-tooth harrow sold by them and not manufactured by the complainants.

Sudden Death of Judge Starrow.

While admiring the beauties of the new congressional library building in Washington on the 16th inst., Mr. James J. Starrow, the eminent patent attorney of Boston, dropped dead. For many years Mr. Starrow was the chief counsel of the Bell Telephone Company and some months ago was appointed by the Venezuelan government its chief counsel to conduct the arbitration negotiations then pending between that government and Great Britain, resulting in the treaty signed by Secretary Olney and Sir Julian Pauncefote. Mr. Starrow was undoubtedly the greatest authority on telephone patents and litigations in that line in the world. He was an electrical expert. Edison was once asked his opinion as to Mr. Starrow's knowledge of electrical matters and unhesitatingly replied—"he knows more about electricity than I do."

The history of the Bell Telephone Company for the past fifteen years is perhaps the history of the most remarkable and stubbornly contested litigation the world has ever known. There has not been a court, from the lowest to the Supreme Court of the United States, which has not been called upon at one time or another to pass upon some phase of the efforts which have been made to destroy the great property possessed by the Bell Telephone Company. The validity of the patents, the manner in which the first patents were granted, and the claims of prior inventors have formed the basis of suits as romantic as they were ingenious, the pleadings, arguments, and briefs in these various cases constituting a library of no small pretensions. The history of this litigation is the history of Mr. Starrow. In all these cases, in hearings before the Patent Office, before district courts, and before the Supreme Court of the United States, Mr. Starrow has appeared in charge of the interests of the great corporation by which he was employed, and with him or opposed to him have been associated or arrayed some of the most eminent lawyers of their day. Mr. Starrow generally won his cases, and it was said of him that the reason of his success was his thorough familiarity and knowledge of the subject. Other men informed themselves of the question at issue as they might any other matter in which they appeared as counsel. Mr. Starrow was so completely saturated with telephonic litigation that his adversaries were naturally at a disadvantage.

In appearance and manner Mr. Starrow was a typical New England Yankee. He was a small man, thin and wiry, quick and nervous in all his movements. He was extremely reticent and secretive, and an excessively difficult man to interview, although he was always very cordial in his manner, but when he was indisposed to give out information no amount of finesse could draw it from him. Mr. Starrow was about sixty years old.

The New Bennetto Color-Photography.

Mr. Bennetto, of Newquay, in Cornwall, has obtained satisfactory photographs in colors, and the pictures were shown at the Society of Arts, London. His photographs are much clearer than those obtained by the Chassagne process, and look almost like water-color sketches. The methods, and indeed the principle, employed remain the secret of the inventor, and it is intended that they shall remain so until several more details and applications of the invention have been more fully worked out. All that is at present known is that the inventor claims to have discovered a system of color photography by which can be transferred to a photographic negative, and thence printed on glass or paper, the exact natural colors of the object towards which the camera has been directed. He employs no pigments, his plates have not to be washed with various colored solutions, and it is not necessary to view his pictures through any combination of tinted glasses. The colors are imprinted on the plate just as are the light and shade in an ordinary monochrome photograph, and are directly visible to the eye, without any subsidiary apparatus. It may be mentioned that Mr. Bennetto, in his earliest experiments, could get no effects with a less exposure than three minutes; now he is able to work with exposures of sixteen seconds.—*Nature*.

Cassier's Magazine has in its April number, among others, the following articles: "Electric Traction in City Streets," with 23 illustrations of electric street car lines in different cities, by Nelson W. Perry, E. M.; "Ship Building in Great Britain," with eight illustrations of some recently built vessels, by Robert MacIntyre, "The Metric System from a Mechanical Point of View," by Samuel Webber; "An Artificial Ice Skating Rink," with seven illustrations representing general views and details of arrangements, by George Hill.

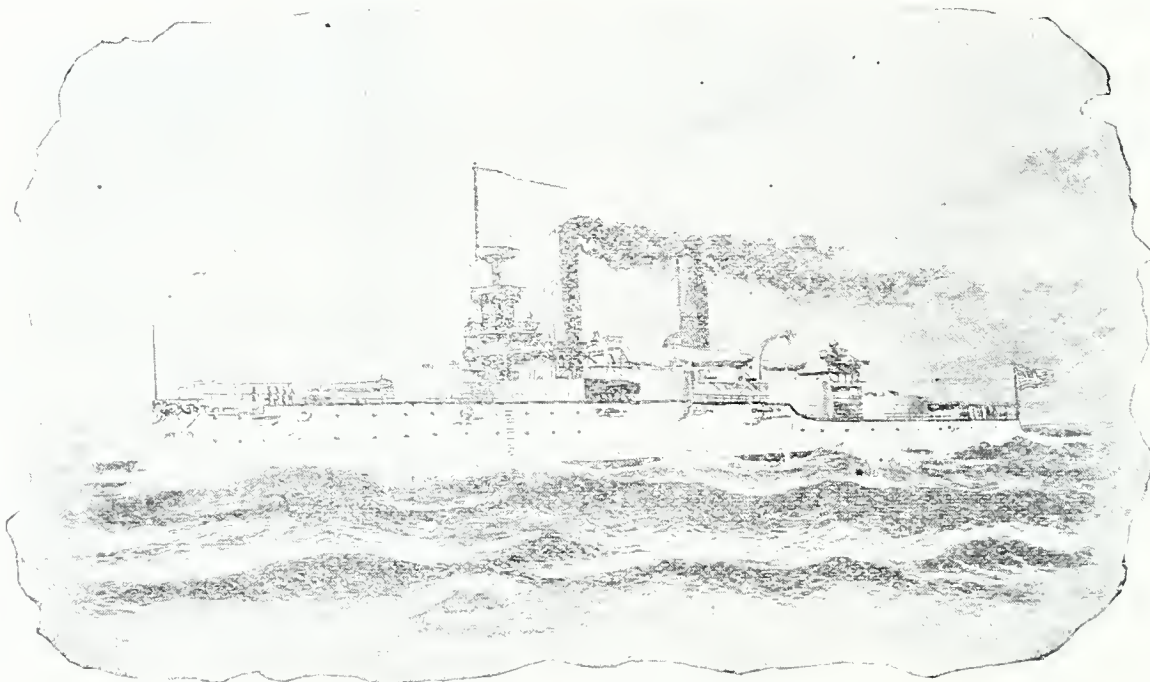
The Breant prize of the Paris Academy of Sciences for 1897 is to be awarded for the discovery of a remedy which will cure attacks of Asiatic cholera

in the great majority of cases. The prize is of the value of 100,000 francs. The competitive papers must be sent to the Academy before June 1 next.

Marconi's New Telegraph.

The inventor, Signor Marconi, who is 22 years old, is now in England, carrying on experiments in conjunction with Mr. Preece; and the results have been satisfactory. His system of telegraphy is without wires, by means of waves somewhat similar to those of Hertz. He found in an early experiment that the waves went through or over a hill three-quarters of a mile thick. Morse signals were transmitted with ease.

Hertz waves have but a very limited penetrating power, while the present kind of waves with the same amount of energy seem to penetrate everything; the exact difference between these and the Hertz waves is not known, but he believes it to be in the form of the waves. Secrecy is still maintained regarding the construction of the transmitter and receiver. He uses about 250 million waves per second; their range is the same as that of the Hertz waves, but the latter are stopped by metal and water, while the others are not; the exciting energy is the same; the difference is in the way they are excited; the receivers and transmitters will not



THE BATTLE SHIP IOWA.

work with those of Hertz, they being entirely new, but the waves are excited in the same general way.

He has sent messages through the air for a distance of 1.75 miles; at two miles the result is not quite satisfactory. Eight volts and three amperes were used, together with a reflector, but the latter will be abandoned in the future, as it is of no value; no lens is used, as these waves are neither reflected nor refracted. He believes they can be sent across London through all the houses, it being merely a question of the size of the apparatus. At present he thinks the practical limit is about twenty miles; but the distance depends simply on the exciting energy and the size of the apparatus; the radiation decreases inversely as the square of the distance, like light.

The system can be used in connection with light-houses in case of a fog. The transmitter and receiver which were used on Salisbury Plains are about 15 inches by 10 by 8. At present he and Mr. Preece are working at Penarth in Wales between the shore and a lightship; he uses waves from 30 meters down to 10 inches in length; he thinks the method will be used in preventing the collision of ships in a fog. To send a message from London to New York might take an apparatus 20 feet square in the base, but he will not say how high; 50 to 60 horse-power will suffice, and the costs of the two stations will be about \$50,000. He does not say whether the waves would go through the earth or the air; at present he sees no way of connecting the waves to make them go in one direction. One of the first applications will be for military purposes, but for naval purposes there seems to be a danger that the waves, which explode the powder magazines in other ships, might also explode the ship where the apparatus is.—*Elec. World*.

The French journals announce that the well-known electrical engineer and writer, Mr. R. V. Picou, has been appointed chief electrical engineer of the exhibition of 1900. Charles Bourdon has been appointed the chief mechanical engineer.

The Iowa Makes an Extra Knot.

The Iowa made 17.02 knots on her trial trip, which is a knot in excess of the contract, which will earn \$204,000 "bonus" for the Cramp's. The turrets of the Iowa are placed higher than those of the Indiana; she rolls deeper than the Indiana, but eaiser and less rapidly. It is not thought she is as stable a ship. The weather during the trial was very favorable.

The Iowa is the first vessel of her class in the new navy, and is considerably larger than the Indiana, Massachusetts or Oregon. Under the act of July 19, 1892, the construction of a "sea-going battle ship" was authorized. This was a departure in the programme of naval construction, the vessels hitherto authorized being designated as "Coast-line battleships." On February 11, 1893, the contract for the vessel was secured by the Cramps at a price of \$3,010,000.

The length of the ship on the load water line is 360 ft., and the extreme breadth is 72 ft. 2½ in. The moulded depth is 39 ft. 4½ in.; the mean draft, 24 ft. With normal draft the displacement is 11,300 tons, and with a full coal supply about 12,500 tons. The armor protection of the ship consists of a water-line belt of Harveyized nickel steel, 14 in. thick on 12 in. of wood backing, extending over a length of 186 ft. amidships and 7 ft. 4 in. wide, tapering below the

water line to a thickness of 6 in. at the lower edge. At every point the ship is well protected by armor, and the main battery, consisting of four 12-in. guns, mounted in pairs in two main oval-shaped turrets, guards the vessel fore and aft. There are besides eight 8-in. guns mounted in pairs in four turrets at the corners of the casemate; six 4-in. guns mounted in sponsons or with shields, and twenty-two rapid fire and machine guns. Owing to her great beam she is very stable, and, as a consequence, the whole battery can be fired in any weather. Her full war complement will be 512 officers, seamen and marines. One of the improvements noticeable in the construction of the Iowa's cabins is lack of wood on the walls. In the Japanese-Chinese war, it is said, more men on board of war vessels were injured or killed by splinters of wood from the cabin sides than from explosives. To obviate such a contingency the cabin walls of the Iowa have been constructed entirely without wood work, and only the really necessary cabin work, such as bureaus and small closets, has been put in. All of this wood has been treated with a solution which has made the various wooden articles fire-proof. The Iowa is a trim vessel, and in her new coat of white paint makes a pretty picture in the spring sun. Her funnels are of a dull yellow and her ominous black guns form a striking contrast to the white-coated sides.—*Seaboard*.

A western inventor has developed an arrangement whereby the act of opening the furnace door to fire puts into operation a mechanical device for injecting heated air into the furnace, and this injection continues for a predetermined time, being shut off automatically by the attached mechanism at the end of a period, the length of which is determined by experiment, which will allow of the combustion of the volatile constituents of the fuel.

After a thorough examination of the Kerst celebrated Shorthaad Course we have no hesitation in pronouncing it the most complete exposition of shorthand writing that has ever been presented to the world.

Recent Inventions.

In a filtering faucet recently patented a composition disk is mounted upon the flange of a rotary disk inside the faucet so that the water flows through it when the spigot is opened.

In a new steam pressure alarm for boilers a bell mechanism is attached to the steam gauge releasing the bell tongue when it reaches a given point, which can be set at any pressure desired.

A new device for use in the sick room consists of a spoon having a dial in the handle, with the hours and half-hours marked on it and an arrow revolved to a knob, to indicate the time for each dose of medicine.

To prevent the danger of falling, while stepping on the hub of a wagon a new step has a cap or ring with checked surface attached to the nut which fastens the wheel on and projecting around the hub.

A paint to make buildings fireproof recently patented, consists of water, caustic soda, salt and blue vitriol mixed together, to form a liquid of the thickness of paint, the compound being discovered by a Washington woman.

To assist a person in holding an ear of corn so as not to soil the fingers while eating it, a new device is composed of three prongs set in triangular form in a handled disk, the prongs being stuck into the large end of the ear.

A new square for carpenters' use has its longer end hollowed out on the inside to receive the shorter end, which is pivoted so that it will fold up, a shoulder in the long end preventing it from opening beyond the square.

To make horseback riding easier a newly patented stirrup is formed of an upright rod surrounded by a spiral spring, which is attached to the saddle by a strap, the loop for the foot being placed at the lower end of the rod.

A newly patented cradle rocks itself by means of a clockwork mechanism, a rod running from a slowly revolving wheel to the upper part of the cradle to rock it back and forth, the rod being adjusted to rock the cradle fast or slow.

To assist beginners in learning to ride the wheel a new device has an overhead track on which a trolley wheel is hung, to which the bicycle is attached by a rope to prevent falling, the floor being fitted with raised guides to keep the wheel straight.

For the purpose of changing a piano to produce a mandolin effect a newly patented attachment consists of a series of flat metal tongues fastened in a frame, which is sprung into position between the strings and the hammers by a rod attached to the third pedal.

A recent patent in lamp brackets for bicycles has a double clamp to attach it to the frame, the clamping part being pivoted so as to turn either the V-shaped or oval-shaped clamp outward, to fit either the fork or head of the machine, the other end carrying the lamp.

A novel device for generating electricity consists of a hollow cane in which a long, slim battery is placed the induction coil being placed close to the handle and surrounded by two removable bands attached by wires to the coil for use as poles in giving electric treatment.

Washing boards, which can be used to pump water from the tub onto the clothes, are pivoted to the tub bottom, the upper end being fastened to a sliding telescope cylinder, which draws the water up by raising the lowering board, a tube in the end of the cylinder pouring the water over the clothes on the board.

To do away with the necessity of tying knots in shoe-strings the ends of the string are fastened at the bottom, after being laced through the holes, a portion of the string being left loose to lace over the hooks on the upper portion of the flap, the center of the string being formed of rubber to stretch tight over the hooks.

The combination of a stretcher and ammunition carrier just patented consists of a flat frame mounted on a single broad wheel by posts extending to the hub, the posts being in two sliding sections with a coiled spring inside the larger portion, against which the end of the smaller post rests to ease the jar.

In a new adjustable handle-bar the head is provided with two tubular pieces supporting the two parts of the bar, which are held in place by a spiral spring, teeth on the two parts of the bar interlocking with teeth on the head of the machine, the grips being mounted on pivots so they can be turned in different positions.

For the purpose of putting out small fires that are too high in the room to reach easily and where there is no hose handy, a new device consists of a

gun with a large barrel to hold water, which is thrown on to the fire by a cartridge inserted in the breech and fired by pulling a trigger, the gun being easily recharged for use again.

Stock can be fed automatically by a new device which consists of pivoted buckets set in pipes leading from grain bins on an upper floor, the buckets being hung so they will turn over and empty the grain into the feed box upon the withdrawal of a catch extending over one side, the catch being worked by pressing an electric button or by clock-work mechanism.

A handy device for counting the number of days between two dates consists of two discs fastened together at the centre, one being smaller than the other; the outer one having the months and days of the month around its edge and the inner one having numbers from 1 up to 365, the unit being set at the day of the month to be reckoned from. An arrow pointed at the last day indicates the total number of days between the two periods.

A device for heightening the backs of pews when the same are too low has been patented by Isaac H. Webb, of Sandy Lake, Pa. It consists of brackets fixed at the ends of the pews, such brackets being grooved to receive the end of a panel and having a recess in the sides of the upper part of the bracket to receive the top rail. Clamps in the center of the panel strengthen the attachment, which can be rendered as ornamental as may be desired.

Another aquatic appliance has been designed by Benjamin Carnie Morrealo, of New York City, in the shape of a skate or shoe which will enable the wearer to walk through the water with greater ease and facility, and which may be worn with a shoe or upon the naked foot. A foot-plate is mounted upon a bottom plate, both pointed in front and provided with a shield, and with wing or fin plates which are pivotally mounted between the plates and so arranged as to fold inwardly when the foot is moved forward and to swing outwardly, like fins, when the foot is moved outwardly.

Anton Uhlman, of Saxony, Germany, has patented a cheap, simple and convenient ink-drier, consisting of a blotting pad having two rollers, to which the ends of a strip of blotting paper are secured in such a manner that as the strip, guided over a convex surface, is used up or rendered useless, it is unwound from one roller and wound on the other. The article is easily taken to pieces to replace the blotting paper which will be sold already wound on rollers with central-spindles. The sides in which the spindles are supported act also as a brake for the rollers, and with their hooked ends serve as stops or abutments.

Compressed-Air Motor Successful.

The Eckington & Soldiers' Home Railway Co., of Washington, has been trying a car equipped with the Hoadly-Knight compressed-air motor, and, according to a statement of the receiver, W. Kesley Schoepf, the motor is a practical success. Orders for fifteen of the motor cars have been given, it is understood, to be used within the District of Columbia limits. About 130 motors will be required to equip the entire line.

Each motor carries thirty-six air reservoirs as an equipment. They are placed beneath the seats and the platform. The pressure is reduced down to the motor automatically, and with a pressure of a few hundred pounds the car runs equally as well, if not better, than when it has been freshly charged. Such cars as are to be used on the Eckington line will run fifteen miles with one filling of the reservoirs. The reservoirs, or "bottles," as they are called by the operators, are tested to 4000 pounds, and carry a pressure of 2000 pounds when in actual use. Several are broken at the factory out of each fresh consignment by a pressure as high as 7000 or 8000 pounds to the square inch, to note the quality of the steel and the effect of the explosion.

The Columbia & Maryland system, between Baltimore and Washington, says Manufacturers' Record, will utilize the Eckington route to enter the latter city. Arrangements are now being made for the resumption of work on the Columbia & Maryland, and there is a possibility that it will be completed between the cities about September 1 of this year.

New Steel Building for Japan.

Matsui & Co., of Tokio, Japan, have placed a contract with the Carnegie Steel Co., of Pittsburg, for a fire proof steel building. It will be 150x235 ft., four stories high and be used for offices and mercantile purposes. About 1,500 tons of steel will be required, and it will be shipped by way of New York, the first shipment to leave here Sept. 1, and the balance of the consignment within two months after. No workmen will be sent to Japan, as the material will all be prepared here ready for erection.

A Shorthand Writing Machine

It may be of interest to students of shorthand, says Consul Parker, of Birmingham, to have information about a machine which has lately been exhibited in England. Although it may be known in the United States, I venture to send herewith the description of it printed in the London Times of January 4. Much attention is given to shorthand here, especially for reports for newspapers. It is quite the rule that every man connected with a newspaper, as an editor or reporter, is a trained writer of shorthand, an accomplishment made necessary by the practice of printing very full reports of speeches delivered in Parliament or on the platform. It has not yet come into anything like the universal use, as with us, for business correspondence, but is growing into popularity since the type-writing machine began to make its way: neither is it employed in courts of law for taking verbatim reports of testimony, this duty being still assumed by the judge, in accordance with old-time usage:

"No mechanism, however ingenious it may be, can render education and intelligence unnecessary in the art of reporting: but something—perhaps a good deal—may be done to lighten the physical labor of writing shorthand. The idea is not new, for several shorthand machines have already been produced, but for various reasons they have not proved successful. Mr. J. F. Hardy, however, has invented a machine which seems to promise better things, and undoubtedly fulfils many of the conditions of success. In the first place, it is small and portable. It measures 8 by 7 inches, and is, perhaps, 4 inches high, so that it is no larger than a rather thick quarto volume. In the next place, it is virtually silent—an indispensable quality if several machines, working at once, are not to disturb a speaker and his audience. It will also have the merit of costing only a few pounds. Not to describe the machine minutely, it may be said to be a miniature typewriter, with only six keys, by the various combinations of which, struck with either hand, a species of Morse shorthand of dots and dashes is imprinted. A roll of ordinary thin white paper is used, and one of the best features of the machine is that it prints regular lines across a continuous page, ending and beginning each line automatically, without any attention on the part of the operator. These are obvious advantages. Its inventor, possibly with a touch of parental partiality, holds that it is easier to become proficient with his machine and his new system of shorthand than with existing systems of "pencil shorthand." On that point we can not, of course, express an opinion. But an expert would certainly find the physical labor of note taking reduced to a minimum, and any transcriber who has learned to read shorthand notes thus taken would be able to transcribe the notes of any reporter who uses the machine; for the machine has no idiosyncrasies, and its writing is always the same and betrays no haste and no carelessness."

Sand Bricks.

The process of making bricks from sand, brought forward by Prof. E. C. Brice, of Washington, is now said to have led to the formation of a company in California—location not given—with a view to carrying on the manufacture of such bricks on an extensive scale, no other ingredients entering into their composition than such as are contained in sand or earth. This stone brick, as it is described or termed, is produced from powered stone—that is, sand, clay, etc., these latter being mixed with a prepared flux, which acts as a bond, holding together the particles of sand or other material used as a filler, the whole being thoroughly annealed by heating. Among the various merits claimed for this kind of brick, the saving of time is conspicuous, only ten hours being required for their manufacture, instead of eight to thirty days—a much reduced consumption of fuel, scarcely any loss from burning, a crushing strength of from 10,000 to 45,000 pounds to the square inch, instead of 40 to 4,000 pounds, and but three fifths the cost of ordinary bricks.—*N. Y. Sun.*

Germany seems to be forging ahead in the race for industrial greatness, if not supremacy. She already stands second among the nations in the value of her exports and imports. Official figures put her exports and imports for 1896 at \$1,926,729,000; England's were \$3,125,820,600. France's \$1,366,167,600, and the United States \$1,544,770,000. But while she thus stands second as a mercantile nation, she is seventh as a naval power. To the danger arising from that fact she seems to be awakening, and it is predicted that energetic action will be taken so that her fleet may surpass that of France.

Care of the Cycle.

Mr. G. Lacy Hillier, one of the most noted and one of the oldest bicycle riders in Great Britain, contributes an article to the *Cyclers' News*, which we abstract from *The (American) Cycling*:

When in use it is highly inadvisable to permit any part of the cycle to remain loose, apart altogether from the danger of accident necessarily involved. Thus, should the pedal come loose in the crank end, or the pedal nut come loose, where these are used, it is most unwise to neglect it whilst riding even a short distance, and for this reason—that there is a big leverage on the pedal end, and the threads of the screw, which hold firmly when the nut is screwed up or the pedal end is well gripped by the lock-nut, will very soon be broken and rubbed when those points are loose in the crank end, the consequence being great difficulty in screwing the pedal up satisfactorily, and in due season the thread will strip and cause much trouble before it is recut. It may, indeed, be laid down as an axiom, that all nuts should be kept tight, and should any particular nut be found to be constantly coming loose, it will be well to have it looked to by the nearest cycle repairer, lest it should give a great deal more trouble later on. The same thing applies very emphatically to ball bearings of the machine wherever they are fitted. These bearings are delicate pieces of mechanism in which, as will subsequently be explained, hardened steel balls run on coned surfaces, which admit of the adjustment of, or the taking up of, wear by closer approximation, whether as part of a threaded nut or actuated by it, and it is very necessary to keep ball bearings adjusted within a reasonable range. Of course, the bearing must not be too tight, or broken balls are sure to be the result, but a very loose bearing permits of irregular running, which, of course, means irregular wear; and in due season, when the bearing is properly adjusted, the irregularly worn cones cause it to be tight at one point and loose at another, with the result that the balls are broken, the internal faces of the cones scratched and worn, and these roughened faces again react upon the new balls put in to replace the old ones. Every rider of a cycle should make himself conversant with the construction of the bearings and methods of adjustment used in the machine he rides, as in nothing is the wise saw about "a stitch in time" so fully justified as in the care of the bearings of the modern cycle.

The bearings sometimes get clogged up with oil and dust, and if the machine is only occasionally used, they may get absolutely stuck; this state of things can be remedied by injecting a little paraffin which liquefies the thickened oil and causes it to run out if the wheels are vigorously rotated for a short time. When, after repeated doses, the bearings appear to be clean, they should be carefully recoiled with some suitable oil, and will, of course, be found much the better for the operation.

Careful adjustment is, of course, very necessary; a too loose, or a too tight, chain is bound to cause trouble anyhow, and of course when the chain mounts the cogs, or through being too tight, throws too great a strain on the frame and bearings, the results are certain to be more or less disastrous. The chain, then, should be kept properly adjusted, which in effect, means just short of tight.

These few hints will indicate what is needed for the care of the cycle when in use, but it is well, also, to bear in mind that the best cycle will rapidly deteriorate in appearance and in value when lying by, if it be not properly looked after, and this remark applies in a greater or less degree to any length of time. After a ride, especially if the roads have been muddy or rain has fallen, all the bright work should be cleaned and gone over with an oily cloth, otherwise the polish will rapidly vanish for good; and great care is needed in removing mud from the enamel, which scratches if the adherent mud is removed too roughly; in a dry state it is best washed off with a sponge, and it will be found useful to run the oily rag over the enameled, as well as over the plated, parts of the machine.

All nuts should be looked at and tested in regular order, so that none may be missed, and this is the right time to look for any fault, because, should anything have broken during the ride, there will be plenty of time to procure another fitting to replace it before the next time of riding. Very often, in articles giving advice as to tours and the like, the writers will be found recommending a careful look over the machine just before starting, which is an obvious absurdity, unless repair and fitting shops are just around the corner.

As regards the tires, there is much divergence of opinion. I am myself a believer, when it is possible to do so, in slinging the machine, or turning it over on the handle bars and saddle, removing the

lamp, of course, and deflating the tires, if it is not likely to be used for some time. It must be an advantage to take the strain off them, and it seems to me likely to cause them to last longer. When machines are being laid by for weeks it is advisable to remove the tire altogether, and whilst putting the machine itself in the driest place to be found in the house, an attic, for example, the inner tubes and covers of the tires may with advantage be put in a relatively damp place, as nothing so soon causes rubber to perish as absolute dryness of the atmosphere.

A French View of American Trusts.

M. Paul Dubois has an article in the first February number of the *Revue des Deux Mondes* on "The Industrial Monopolies of the United States." A monopoly only becomes dangerous to the state when it acquires control over some absolutely necessary article of common use, such, for example, as oil or matches. There are two ways of creating a trust in America. The first, to which alone the term "trust" should, strictly speaking, be applied, is effected in the following manner: A majority of the shares in each of a number of local companies or firms carrying on the same or allied industries are placed in the hands of a council of trustees, composed, of course, of the best business men available in the various companies and firms, who are thereby invested with absolute power, and the shareholders have nothing to do but to draw their dividends, which are usually large. Of this system the famous Standard Oil Trust was the pioneer. The second method is to fuse all the companies or firms in a particular industry into one big new corporation, which buys up the various small establishments by giving its own shares in payment, or simply buys in the open market a majority of the shares of the various companies. That was the method employed by the Diamond Match Syndicate, the history of which, however, must not be taken as a type of the fortunes of all such syndicates. Of the two methods the first is probably, on the whole, the most profitable, because the council of trustees, having no legal existence, is able to work in absolute secrecy, not subject to any inconvenient control by the shareholders.

Made in Germany.

The record of German progress during this half-century is certainly not less impressive than that of England—from certain points of view it is far more significant. Applying the test already employed for England—the value of the manufactured exports—we find that German commerce has increased from £36,000,000 in 1850 to £163,000,000 in 1889; the percentage of increase being 350, as compared with 150 per cent of increase in British commerce. Admitting that these percentages are not a fair test, it must nevertheless be agreed that German progress has been much the faster of the two; and very much faster, when we consider the relative disadvantages under which Germany started in the race. In twenty years Germany had doubled her exports, and lifted herself to a point of vantage equal to that at which England started in 1846. In twenty years more she has attained an industrial development on a par with that of England, in practically every line of manufacturing; in many lines surpassing it. German ambition sets no limit on the progress of the future; for it looks upon the development of the half-century as merely preliminary and preparatory.

British statesmen and manufacturers now generally admit that the German can undersell the Englishman today, in his own markets, in all great lines of manufacture.

An examination of the detailed tables shows that Germany has for many years been selling a much larger quantity of manufactured articles in England than England has sold in Germany. These are, in nearly every instance, articles which England makes at home and exports to other countries. The Germans are underselling the English in England; while the German tariff prevents England from underselling the Germans in Germany.

To ascertain whether or not a room is damp a kilogram of fresh lime should be placed therein, after hermetically closing doors and windows. In twenty-four hours it should be weighed, and if the kilogram has absorbed more than ten grams of water (that is, more than one per cent) the room should be considered damp and classed as unhealthy. The question of the dampness of dwellings is a frequent cause of dispute between landlord and tenant, and is naturally solved in the negative by the former. The question can be settled in the future by the test of the hydration of lime, which will give irrefutable proof of the validity of such complaint.

Fast Motorcycles.

From the race of horseless carriages and motorcycles between Paris and Marseilles and back many interesting things have been learned about such machines and their practicability. Levassor and Bauhard were the makers of the three winning vehicles. The first, a small, four-seat wagonette, did the run in 66 hours and 32 minutes; the second, being the same style of carriage, in 68 hours and 11 minutes, and the third in 70 hours and 55 minutes. This means an average rate of about 16 miles an hour on a journey of 1,129 miles. The distance was achieved in 10 days, with rests during the nights.

Every liberty had been given to the competitors for repairing their engines on the road. They took with them such supplementary pieces of machinery as they chose. Time spent in repairs was counted as time spent in traveling. Independent of this a quarter of an hour was allotted to each driver for the necessary cares to be given his machine.

Forty-two carriages and motorcycles left Paris. Owing to accidents met on the road, and a severe gale on the second day out, a little less than half of that number accomplished the whole journey. Steam motors did not show favorably beside the petroleum motors. Some of them, Count de Dion's steam vehicle, for instance, did for a time splendid things in speed. It climbed hills at a speed which locomotives on rails could not equal.

Two types of light motorcycles attracted special attention in this race. The first is the conveyance invented by M. Bollee, a young man whom his admirers have already christened "the French Edison." M. Bollee is just 27, and the number of his useful inventions equals that of his years. In the spring of this year one met him in every part of Paris, much at home on his new "voiturette." A carriage it is, although at first sight it does not seem to be one. He made it with two comfortable seats, one before the other. The coupled wheels come first, and between them is a seat. The third wheel, which is "mobile," follows. Before it is the second seat, in which sits the conductor.

The motor is of two-horse power. It is operated with gas. It does not weigh more than 380 pounds.


Another type of motorcycle is the invention of two men—one of whom has been from the first hour an advocate of horseless carriages—Count de Dion. The other is named Bouton. Their bicycle looks frail. It is simple in construction. It consists mainly of a petroleum can, a diminutive motor, an accumulator and three wheels. With that the traveler makes without difficulty, eighteen and a half miles an hour. The originality of this motor is the system of electricity used for exploding, so to say, the mixture used as motive power.


The race has not offered a proper opportunity for comparing together the Bollee and the Dion-Bouton systems. M. Bollee came first at the first halt, but later, before the hurricane struck the travelers, his machine could make no progress, while the Dion-Bouton tricycles passed through the tornado at a good pace. A race between these two machines alone will tell their comparative merits. The builder who would combine the good there is in each would nearly solve the great problem of "the motorcycle for millions."

While in 1894 we could not count over the whole of France more than fifty horseless carriages and a little more than twice that number in 1895, the summer of 1896 saw it increased to above 1,000. This figure does not include light tricycles of the order described above.—*New York Press*.

The inventor of the jinricksha, Izumi Yosuka, has fallen on evil days, and a project is on foot to obtain for him a pension from the Government of the Mikado. He launched his invention upon a Jap that as yet knew not patent laws. There are some who say that the fructifying idea came from an American missionary; but whether this be so or not, it was Izumi who, in conjunction with two others, Kozuke and Takujiro, first applied to the Government to ply the trade of the rickshaw man. Before very long thousands of people throughout the East were earning a livelihood by means of Izumi's ingenious device. When the Japanese Patent law was promulgated he applied for protection by letters patent; but the law could not be made retroactive, and he therefore gained nothing but his bare wage as a licensed jinricksha drawer. Now that he is old even this means of livelihood is denied him, and he is lifted to the ranks of the men who have enriched the world and become themselves impoverished.

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By the consolidation the well known firms of Hoffman, Corkran & Co., cordage hammock and yarn manufacturers, and Coyle & Coyle, rope, twine and bolting concern, Philadelphia. Mr. D. Linn Coyle becomes a special partner and the consolidated firm one of the most extensive in the country—favored just now with important government contracts.

There has been expended in the material and laying of submarine cables over \$200,000,000.

The United States Supreme Court has decided in favor of the Western Union Telegraph Company, in the suit of the City of St. Louis to collect \$5 tax on each pole in the city limits. On a previous occasion the court decided in favor of the city. The present decision does not decide the merits of the case.

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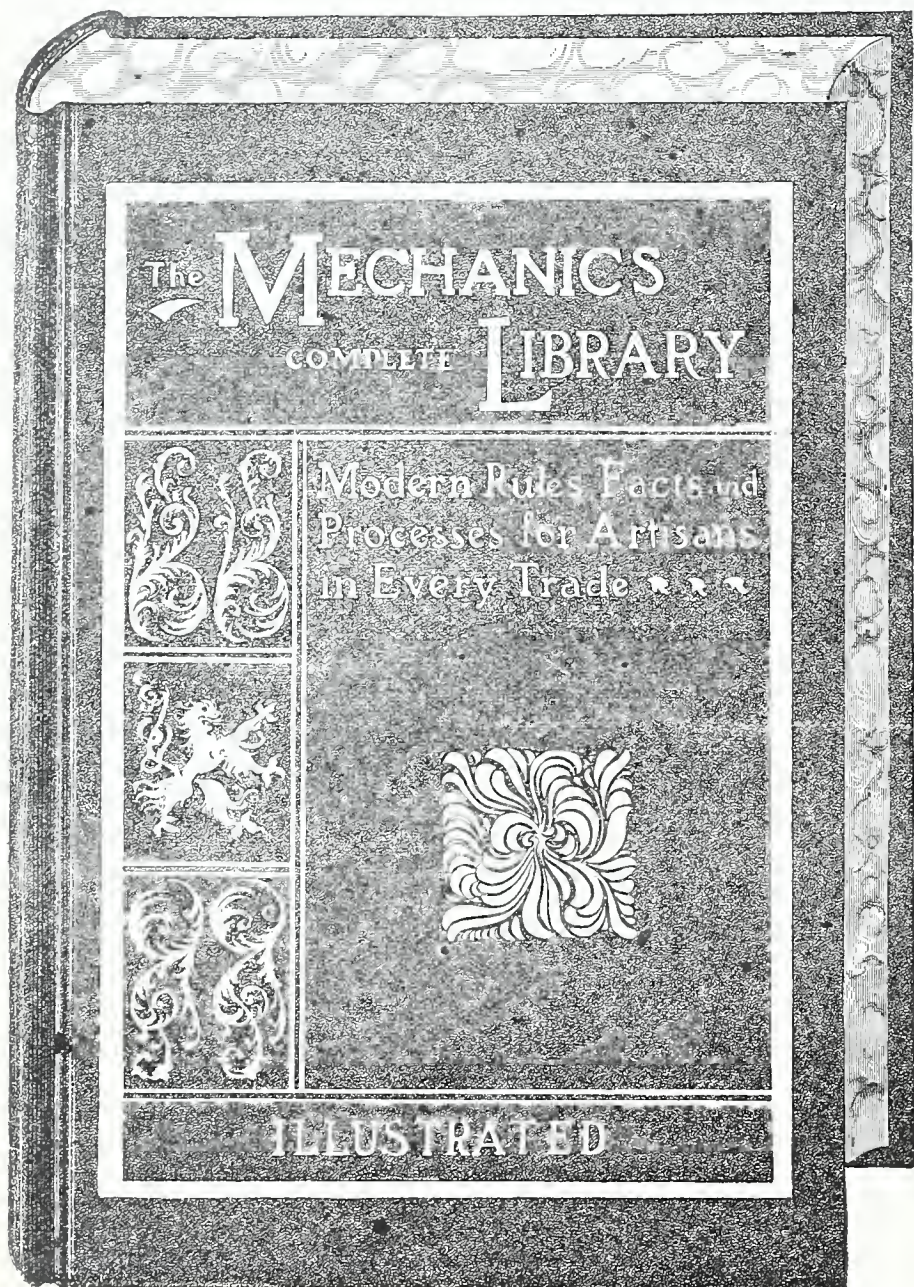
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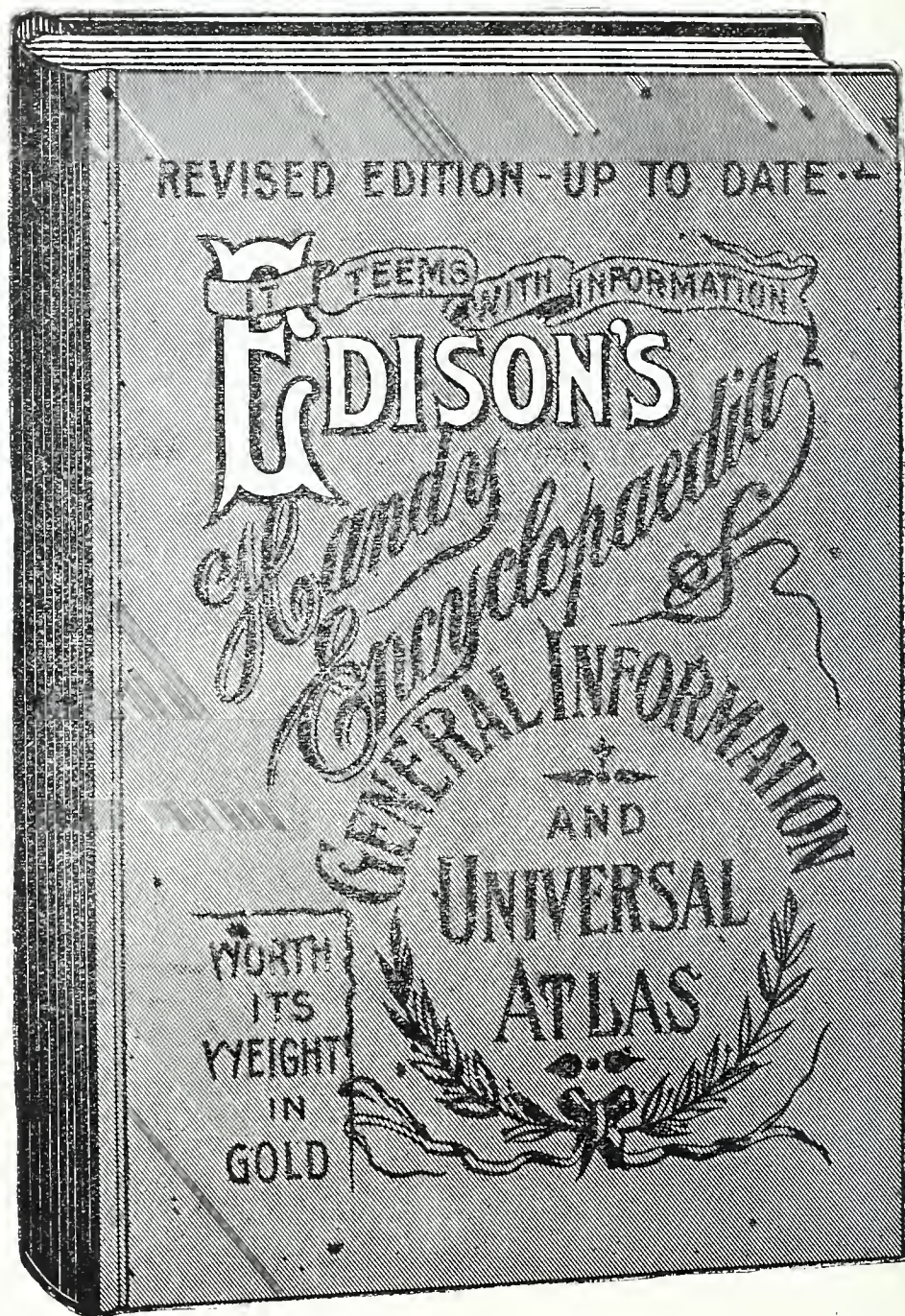
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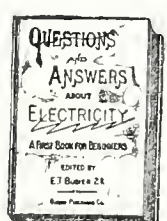
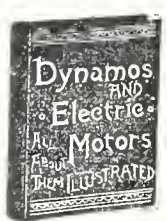
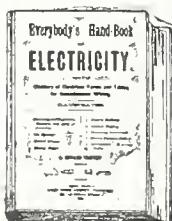
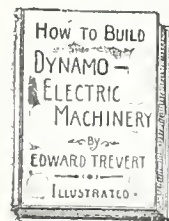
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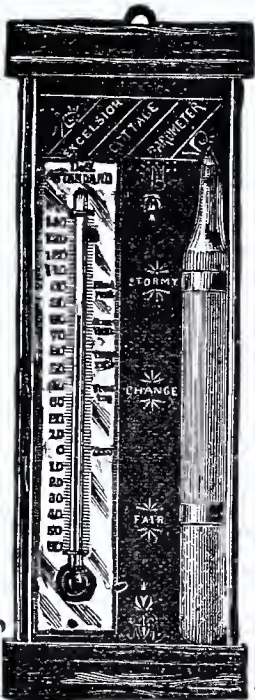
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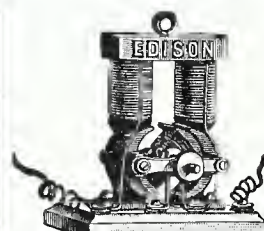
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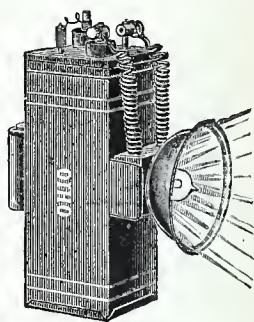
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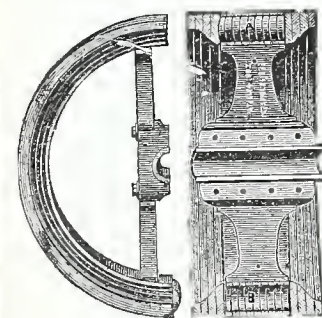
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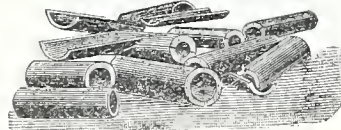
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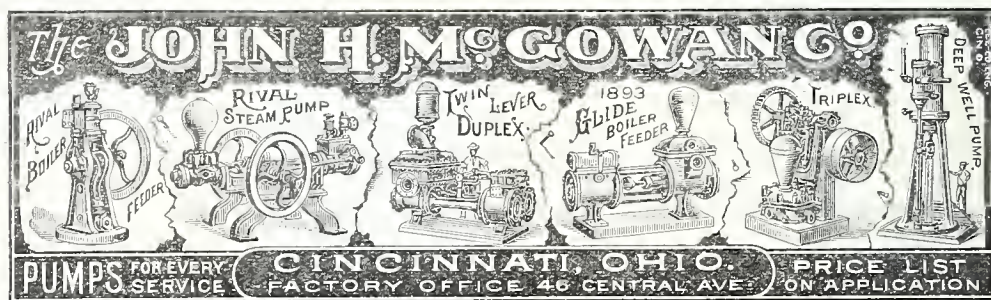
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The Patent Law Association.

The Patent Law Association, of Washington has been formed with a view to the great advantages of such an association not only for its members but also for promoting the interests of the patent system. It has been governed throughout by an admirable combination of conservatism and energy. It has taken up propositions singly, has carefully considered them, and having once agreed upon a course has pursued that course with firmness and decision. It is the object of the association to carefully weigh and study patent legislation, to watch the developments of new rules and practice, to provide the foundation upon which a patent bar may be sustained, to bring its busy members into closer relations and to represent in a worthy manner the great body of practitioners throughout the country who must look to this association for much of the active work that must be accomplished immediately at the capital.

While its individual members are uniformly arrayed against charlatanism, it is not the purpose of the association to scrutinize the character of those not members, but rather to create and maintain a standard which shall of itself be effective in contrast to the inexcusable practices of the swindlers and sharks who are constantly angling for inventors.

The association now has in hand the consideration of a report by W. D. Balwin, Ernest Wilkinson, E. M. Marble, Jas. L. Norris, J. C. Dowell and others relating to the creation of a standard for admission to practice, which shall accept the profession as it stands, but while not denying any one's right to urge his own cause, shall make it impossible for any one to decide upon the spur of the moment to enter "the patent business."

An example of the work such an association may perform is found in the manner in which it took up the consideration of a patent bill before congress.

Shortly after the association had been formed the standing committee on patent, laws and legislation composed of W. C. Dodge, H. A. Seymour and Walter F. Rogers took up a bill which had passed the House of Representatives and was before the Senate committee. They found that it was seriously defective and had some dangerous provisions. It had a clause changing the term of abandonment from two years to six months followed by an unintelligible and impossible provision requiring the commissioner of patents to oblige the applicant to show cause at the expiration of eighteen months from some undetermined time why he had not finished the prosecution of his case. It imposed the new bar of two years publication before application upon pending applications, and made that bar a defense in terms which would have applied

to existing patents. The clause relating to foreign patents was so stated that no opportunity whatever was given for a dissemination of information regarding the bill abroad or to those having foreign applications in hand. The association adopted a report of Mr. Rogers, printed his report and requested him to appear with other members of the association before the Senate committee. Mr. J. H. Whitaker, Mr. William McIntyre and Mr. James L. Norris and others succeeded, against strong opposi-



BENJAMIN BUTTERWORTH, COMMISSIONER OF PATENTS.

tion in getting a hearing, and subsequently Mr. Whitaker, Mr. Rogers and Mr. Arthur S. Browne, and others drew the bill, with the exception of one or two peculiar but harmless clauses, in the shape in which it passed the Senate, the whole matter having been carried through within two weeks, against the strenuous opposition of some gentlemen who should have welcomed the changes and who have since admitted their necessity.

On another page will be found an interesting account of a recent meeting of the association and a synopsis of the after-dinner remarks made by some of the members.

The New Commissioner of Patents.

No appointment made by President McKinley has been received with so much general satisfaction, as that of Benjamin Butterworth to the position of Commissioner of Patents. Probably no man in the United States, is so well equipped to discharge the high duties of that responsible place as is this brilliant and able son of Ohio. The former administration of the Patent Office under General Butterworth met with universal approval among the patent attorneys of the country, and as for the American inventor he has always been to them a true and faithful friend. One of the most satisfactory achievements of his former administration was the compilation and publication of "The Growth of Industrial Art," showing the development of invention in all the fields of industry, making it one of the most complete and interesting works ever published by the government. Gen. Butterworth brings to his office a mind thoroughly disciplined in all the branches of the patent law, and an intellect capable of grasping and acting intelligently upon any question that may arise during his administration of the place.

When Gen. Butterworth was a member of the House of Representatives, he soon became a recognized leader, and won the reputation in a very short time of being one of the ablest and readiest debators on the floor. In many years of public life his reputation has remained untouched by the hand of political scandal, and he always has won and retained the respect of the intelligent members of both parties.

As a political orator Gen. Butterworth has won national fame. In every great political contest during the last quarter of a century he has been one of the most conspicuous figures, and his reputation as an eloquent speaker placed him in great demand in almost every state in the union during the presidential campaign. In the recent great battle between gold and silver Gen. Butterworth made a widely extended speech-making tour at the request of the National Committee. He was sent as far as the Golden Gate to aid in the work of teaching the people of the Pacific Slope the necessity of a sound

national currency. The republican leaders of California acknowledge that his work was very effective and that he aided largely in the results of the campaign. Personally Gen. Butterworth is a very handsome man as will be seen by the excellent photograph published herewith. His popularity is as large as his circle of acquaintances which covers every state in the Union. The patent attorneys, the American inventors, the patent office officials and the country at large are to be congratulated upon the fact that Commissioner Butterworth yielded at last to the desire of the President for him to accept the position, as all must feel that in his charge the administration of the patent office will be clean, thorough, business-like and honorable.

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WASHINGTON, D. C., MAY, 1897.

THE Manufacturer's Record of May 7th contains a special Seaboard Air Line supplement comprising many pages of intensely interesting matter descriptive of the great region tributary to that line. Well written articles tell of the wonderful resources of the South generally and illustrate the great opportunities for investment and development in that region.

As a result of the decision in the Bell Telephone Company suit, the stock in that great corporation went up ten points in the twelve hours following the announcement from the United States Supreme Court. An immediate jump of $4\frac{1}{2}$ points was made and those who had "tips" and speedy wire connection from the Capitol to their brokers made small fortunes.

THE United States Consul at Zurich is satisfied from investigations that the great expense of producing aluminum will soon be reduced to such an extent that its commercial standing will be assured. It is now too expensive for general use. It is believed that within a few months the price of this metal will fall to about 27 cents a pound—thus taking fourth place in the list of commercial metals.

GENERAL MILES has gone to the scene of the conflict between Turkey and Greece to study the war from a scientific standpoint. From present appearances there will be little left of genuine war when the General reaches the Levant. The Turks, superior in numbers and equipment, and equal at least in fighting valor, have far the best of the conflict and naught but humiliation and defeat are in store for King George's people.

PRESIDENT MCKINLEY touched the "button" at the White House on the 1st inst. and set in motion the machinery at the Tennessee Centennial Exposition, at Nashville. Elaborate preparations have been made for this exposition and the opening day found the grounds and the placing of exhibits less chaotic than has been the case in previous expositions of this nature. It is hoped the enterprise will prove a success financially.

HERE is a prize-offering scheme for inventors that has merit. Senator Fairbanks has introduced a bill to provide that one month after the passage of the Act any person, a citizen of the United States, who shall be sole inventor and patentee in seven or more patents issued under the patent laws of the United States, shall be rewarded by the receipt every month for the balance of their lives of one copy each of the current official publications of the United States Patent Office and of the publications of the Smithsonian Institution. The provision is made

that he shall not be entitled to this reward until ten years after the date of his or her first United States patent.

THE new Canadian tariff bill substitutes ad valorem for specific duties and contains in the preferential schedule a provision that England will receive at once a reduction on her imports into Canada of one-eighth until July and one-fourth thereafter. It also contains a provision that when it comes to the knowledge of the government that a trust or combination has been formed and the price of any article enhanced because of tariff duty, the tariff may be suspended in whole or in part.

INVENTORS and other readers of the INVENTIVE AGE will be interested in the classified list of patents issued by the U. S. Patent Office prior to January 1, 1897. It is published on another page in this issue. It would seem that nothing new could be discovered but inventive genius is still as active as ever and over 400 new patents are being granted every week. A glance at the list must impress the inventor with the magnitude of the task of making thorough searches and the importance of securing thoroughly reliable attorneys who will not slight or over-look the interests of the inventor.

INVESTIGATIONS carried out by Dr. G. Stanley Hall, of Clark University, covering a period of ten years, are comforting to that large class of persons who fear lighting above all other messengers of death. It is shown that not over 200 people are killed every year in the whole United States while in the city of New York alone more than that number meet death from drowning annually. The fear of lighting is an inherited superstition. The risk of being kicked to death by a horse is 50 per cent greater in the city of New York than death from lightning strokes.

It is believed that President McKinley is so strongly impressed with the idea of establishing a Department of Commerce and Manufactures, under a separate cabinet officer that he will shortly recommend the same to congress. The new department would have jurisdiction over all matters relating to the manufacturing interests of the United States, the extension of foreign markets and the increase of trade facilities with foreign countries, as well as to deal with problems of interstate commerce. For this purpose, it would include by transfer such bureaus as those of Steamboat Inspection, Navigation, Lighthouse Board, Life Saving Service, United States Coast and Geodetic Survey, and the Bureau of Statistics, all now under the Treasury Department; the Bureau of Consular Service and the Bureau of Statistics, now included in the Department of State, the interests of none of which are directly relevant to the work of the departments named.

THE restless ingenuity of the inventor, says Cassier's, is almost as much of a bore to the leaders of commercial warfare as to the war lords of militarism. It has been said, and doubtless with truth, that the managers of the great commercial combinations consider the possibilities of superseding inventions as the greatest element of risk in their calculations. From this point of attack industrial combinations are almost helpless, for no degree of business skill can avail when whole plants are rendered obsolete by the advent of some new device or process which may supplant the entire method of manufacture, if not the product itself. It is this equalizing element which may, in obedience to the law of supply and demand, check to a great extent the growth of commercial combinations, intended to control production, prices and business. The very success of a business combination sets inventors to work devising methods, processes and machines to accomplish similar results by other means, and no man knows what a day may bring forth when the tide of invention is turned in any one definite direction. The natural laws of the physical forces must control in the end, and it is to those laws that the development of the commercial

side as well as the technical portion of human industry must look for ultimate guidance.

THE decision of the United States Supreme Court in the Bell Telephone case determines the status and rights of inventors. The contention heretofore made by the enemies of the patent system that applicants for patents are simply quasi trustees for the public is positively denied and the fact is established that **AN INVENTION IS THE ABSOLUTE PROPERTY OF ITS INVENTOR.** Nothing could more effectually dignify and benefit the inventor, and no act or decision could add greater security to the investor in patent rights. An inventor now knows that if he succeeds in securing a valid patent on a good invention he has something of value and the investor in patented articles knows that he has rights as absolute as government land titles. There will be less litigation hereafter—fewer attempts on the part of railroad and other corporations to crush inventors by expensive infringement suits and appropriation of the triumphs of their genius to their own use without just remuneration. The Patent System has been sustained by the highest tribunal in the land.

Electricity in War.

The declaration of war between Turkey and Greece, which was announced last week, has put the army and navy authorities throughout the civilized world on the qui vive because the probability that, especially in the case of a more general war, as some think likely the many inventions for offense and defense which have been perfected during the past years of peace will for the first time be put to a practical test.

We remember with what interest naval authorities regarded the late Brazilian civil war because of the equipment of El Cid with the pneumatic dynamite gun, and the disappointment in those quarters that the opportunity of practically testing its capabilities was not given.

Since the last European or American war great strides have been made in the perfecting of armor plate and armor-plate-piercing projectiles, and so evenly have the two progressed that it is difficult to determine whether either has made any relative progress.

In the way of torpedoes, dirigible and otherwise, considerable progress has been made, so that the torpedo is now probably the most effective instrument of destruction that can be employed in offensive warfare. Against this weapon no armor plating is effective and other means of defense have been necessarily resorted to. Of these the searchlight is doubtless the one most relied upon. But this is by no means the only role in which electricity will appear in the next great war. Triangulation by means of the Fiske electric range finder now enables a gunner to plant a missile with great accuracy upon an enemy's fortress or his man-of-war, and other devices, notably of the type of Prof. Badt's electro-magnetic sentinel, will give warning even in the darkest night or the densest fog of the approach and exact position of any man-of-war.

During the past few years the United States engineer corps at Fort Wadsworth have been engaged in accurately plotting the approaches to New York harbor, so that the positions of all buoys and landmarks are accurately known. The elevation of each gun required to drop a projectile upon any one of the plotted points would, therefore, in the case of war be no longer a matter of experiment, and doubtless the same is true of other harbors abroad.

With electro-magnetic sentinels judiciously placed in the approaches to a harbor at a distance too great for the invader to reach the city with shells, almost the exact position of an invading vessel, the direction of its course and its speed would be known during the darkest night as well as in the brightest day.

With the increased means of intelligently following the movements of the enemy which electricity alone can afford, future warfare will be less a contest of brute force than one of brain. In such a contest the United States has little to fear.

In the next general war the most effective forces will be brains and electricity. Armor plate and projectiles will be of secondary importance.—*Electricity.*

Food is served in a London (Eng.) restaurant on electrically-heated plates, so that the guests can eat leisurely and have the viands warm until the close of the meal.

The Bell Telephone Decision.

One of the most far-reaching and important cases ever decided by the United States Supreme Court was handed down on the 9th inst. The Bell Telephone Company has been sustained in its contention against the government, which asked to have the Berliner patent of 1891 set aside, on the ground that the delay of thirteen years in the Patent Office was fraudulent, and that the patent of 1880 covered the same ground on which the patent of 1891 was applied for.

This decision sustains the lower court. Justices Gray and Brown took no part in the case, as both, it is understood, are interested—one of them being owner of 1,600 shares of Bell Telephone stock. Justice Harlan dissented but he delivered no opinion.

By this decision the Bell Telephone Company will continue to hold the monopoly of the only commercially successful telephone in the country until 1907. The case has attracted wide attention because of the extensive interests involved in its settlement, and the opinion of the court has been anxiously awaited. The suit involved the practical control of the art of telephoning. It originated in a charge of collusion in the Patent Office, and was brought to obtain the repeal and cancellation of letters patent of the United States No. 463,569, dated November 17, 1891, granted to the American Bell Telephone Company, as assignee of Emile Berliner, the alleged inventor. The repeal and cancellation of the patent were sought upon the ground that the application for it, while filed in 1877, was not issued until 1891. This delay was charged to be unnecessary and improper on the part of the Patent Office and the Bell Telephone Company, which, as Berliner's assignee, controlled the application. It was asserted that the company had acquiesced in and promoted the delay, and for their own interest, thus defrauding the public of its rights.

It was claimed that the Berliner patent practically controls telephony, as it has to do with both the transmission and receipt of sound, and that the delay thus secured until 1891 operated to prolong the control of this art for fifteen years beyond the time of the expiration of the Bell patent.

It was also asserted that the patent was granted by the Commissioner of Patents without authority of law, and that it was for the same invention for which a patent had been granted in 1880, and that the principle was therefore not new.

The suit originated in the United States Circuit Court for the District of Massachusetts, where it was decided in favor of the United States. Upon appeal to the Circuit Court of Appeals for the First Circuit this decision was reversed, and the contentions of the Berliner claimants upheld. From this opinion the United States appealed to the Supreme Court.

Mr. Justice Brewer, in beginning his statement, said this was the first case in this court in which, upon proofs, an application has been presented to set aside a patent for an invention wrongfully issued. However, there was no doubt of the right of the United States to maintain such a suit. The question therefore, to be decided, was whether upon facts disclosed the relief ought to be awarded. He took up the difference between patents for invention and land patents, the principal difference, he said, being that invention patents do not cover something which belonged to the government before it was invented. Hence, in this case the patent conveyed to Berliner nothing that he did not before have. The patent only gave him exclusive rights for a time as an inducement to make it public. Consequently the government has higher rights in a suit to set aside a patent for land than a similar suit on a patent for an invention.

Taking up the question of delay in the Patent Office, Justice Brewer said the application was pending in the department for fourteen years, during thirteen of which the invention was the property of the Bell Telephone Company. Mr. Bell had invented the telephone, and as that patent had expired, all the monopoly which attaches to it alone had ceased, and the right to use it has become public property. But his apparatus was insufficient for public uses. Berliner's patent supplied the deficiency of existing patents, as he invented something by which, taken in connection with Edison's and Blake's invention, Bell's undulating current could be made practically available for carrying on conversations at long distances. In other words, the telephone used today is not only that of Bell, but of Edison, Blake, and Berliner as well. Therefore the right to use the Bell patent alone would be a barren one, extending the telephone patent to the life of the Berliner patent.

He said that some delay was unavoidable in the Patent Office. An application for a patent cannot be considered and determined on the instant.

Hence, there could be no complaint on the mere fact of delay, though there might be of its excessiveness. But, added the opinion, it mattered not whether the delay be reasonable, if the applicant is not responsible for it. If the fault was that of the Patent Office, the applicant is not held blameworthy, and his legal rights are not affected. He cannot be punished on account of the delay or negligence of the tribunal before which he is presenting his suit.

With reference to the arguments on the subject of the continuance of the telephone monopoly, Justice Brewer repeated that there was no question that Bell's patent had expired, but it must be remembered that Berliner's rights were independent from those of Bell. If there should be a new invention upon the expiration of the Berliner patent, the rights of its author could be abridged to relieve the public. The inventor of the latest addition is entitled to full protection, and if the telephone company buys that invention it is entitled to all the rights which the inventor had. The court,



EMILE BERLINER,

Inventor of the telephone device owned by the Bell Company and sustained by the U. S. Supreme Court.

he says, dissented entirely from the views urged by counsel that the applicant for a patent was a quasi trustee for the public, but held that an invention was the absolute property of its inventor. The government in order to make its case must establish affirmatively that the delay in the Patent Office was caused by the conduct of the applicant. It cannot rest on mere inferences, but must prove the wrong in such a manner as to satisfy the judgment before it can destroy that which its own agents have created. This requirement the government had failed to meet.

Continuing on this point, he said there was no testimony as to any corruption of the officers of the department by the defendants or any attempt at such corruption. So, far, indeed, as was shown, there never was an intimation made to a single official that he could profit by a moment's delay. All thought of wrong, therefore, may be put aside.

The conclusions of the court very much condensed on this branch of the case were:

1. That before the government is entitled to a decree canceling a mechanical patent on the ground that it has been fraudulently obtained it must establish the fraud by convincing testimony.
2. That an applicant for patent cannot be held responsible for the dilatory acts of Patent Office officials unless the delay is brought about through his corruption.
3. The evidence in this case does not tend in the least degree to show any such corruption.
4. If the circumstances do not show that the delay on the part of the official was wholly justified they do make it clear that it was not wholly unwarranted.

The latest improvement in railway transportation is a padded apartment in a parlor car where small children can be turned loose without danger. A sideboard contains paregoric and other infantile necessities.

Australia has no orphan asylums. Every child who is not supported by parents becomes a ward of the State, and is paid a pension for support and placed in a private family, where board and clothes are provided until the fourteenth birthday.

Color Photography.

A fine collection of photographs made by the new radio-tint process of M. Villedien Chassagnac, of Paris was recently brought to New York by Messrs. Anthony & Co. This process is likely to work a revolution in photography for who will want simply "lights and shades" when it is possible to reproduce an entire landscape with all its vivid coloring or a portrait with delicate, life-like flesh tints?

The Anthony collection of pictures embrace landscapes, marines, portraits and several lots of coins and metal articles, the latter taken merely to illustrate the wonderful discrimination made by the new process in copying accurately delicate variations in coloring.

He will make the photographs before your eyes, and will allow you to go through the whole performance yourself, but as yet will not tell the secret of the chemicals used.

The application of color to the photographic print is by purely chemical means, and the method is non-technically described thus:

A negative is taken on a gelatine plate, prepared by treatment with a certain solution. This is developed and fixed in the ordinary manner. It shows no trace of color. From it a print is taken on glass or paper, the plate or paper being specially prepared by treatment with the same solution. The transparency, or the paper print, in no way differs in appearance from an ordinary positive, and shows no trace of color by transmitted or reflected light.

It is washed successively with three colored solutions, blue, green and red, and it takes up the appropriate colors in the appropriate parts, these three colors giving, by their various combinations, all varieties of hue. How it is that this power of selective absorption is given to the components of the photographic image is the interesting question connected with the process.

In the landscapes every minute difference in the shades of the green verdure is brought out, and the sunlight effects through the trees and the falling of the rays on the turf in openings in the woodland is charmingly reproduced.

In a portrait of Mr. Anthony himself, an inch of his watch chain is shown in the yellow of the gold of which it is made, and the deep red of his scarf is also perfectly produced. Mrs. Anthony has herself photographed wearing two bunches of violets, one lighter than the other; a yellow gown, a red hat and many colored ribbons. She was a symphony in colors as she stood before the camera, and so was the picture that was made.

The firm say they will be pleased to show the photographs to any one who may call. A consignment of the chemicals with which the pictures are made will arrive in this country by July 1. They are not expensive.

The Bazin Roller Boat A Failure.

The correspondent of the New York Herald sends the following account of the trial of the famous Bazin roller boat: "The experiments do not so far carry out the sanguine expectations of the designer. Instead of sixty miles an hour, the *Ernest Bazin* could barely make a dozen. Instead of being a greyhound, it was a sloth. This failure is due to many reasons. The chief of these, and the one which touches the very principle of the invention, is in the lack of speed in the rollers. M. Bazin had made the mistake of imagining that a low rate of power would suffice to move the rollers, and that to conquer their *vis inertia* he had calculated on an average of fifty horse-power to every axle. He had lost sight of the fact that every one of the three axles carries one-third of the weight of the upper part of the entire structure, or say a little over one hundred tons. Further, the trial trips have proved that the rotation of the rollers entailed the additional weight, through adherence, of a large volume of water, and a considerable loss of power in consequence. M. Bazin had hoped to remedy this defect by rubber paddles, whose office was to beat back the waters, but it needs no great mechanical knowledge to recognize that these paddles worked somewhat like brakes upon the wheel of a carriage. The power of the machinery was tripled, but in doing this their weight was also tripled. The result was too great an immersion of the ship. Now, the original calculations had called for a displacement of one-third of their diameter as the highest limit of effective working. This limit being passed by the increase in weight the situation seems to be hopeless."

Sir Isaac Pitman, the inventor of the system of stenography which bears his name, died recently in London.

A detachable head for barrels, to allow access to the inside of the barrel for washing purposes, has been patented.

New Steel Arch Across Niagara Gorge.

[Orrin E. Dunlap in Western Electrician.]

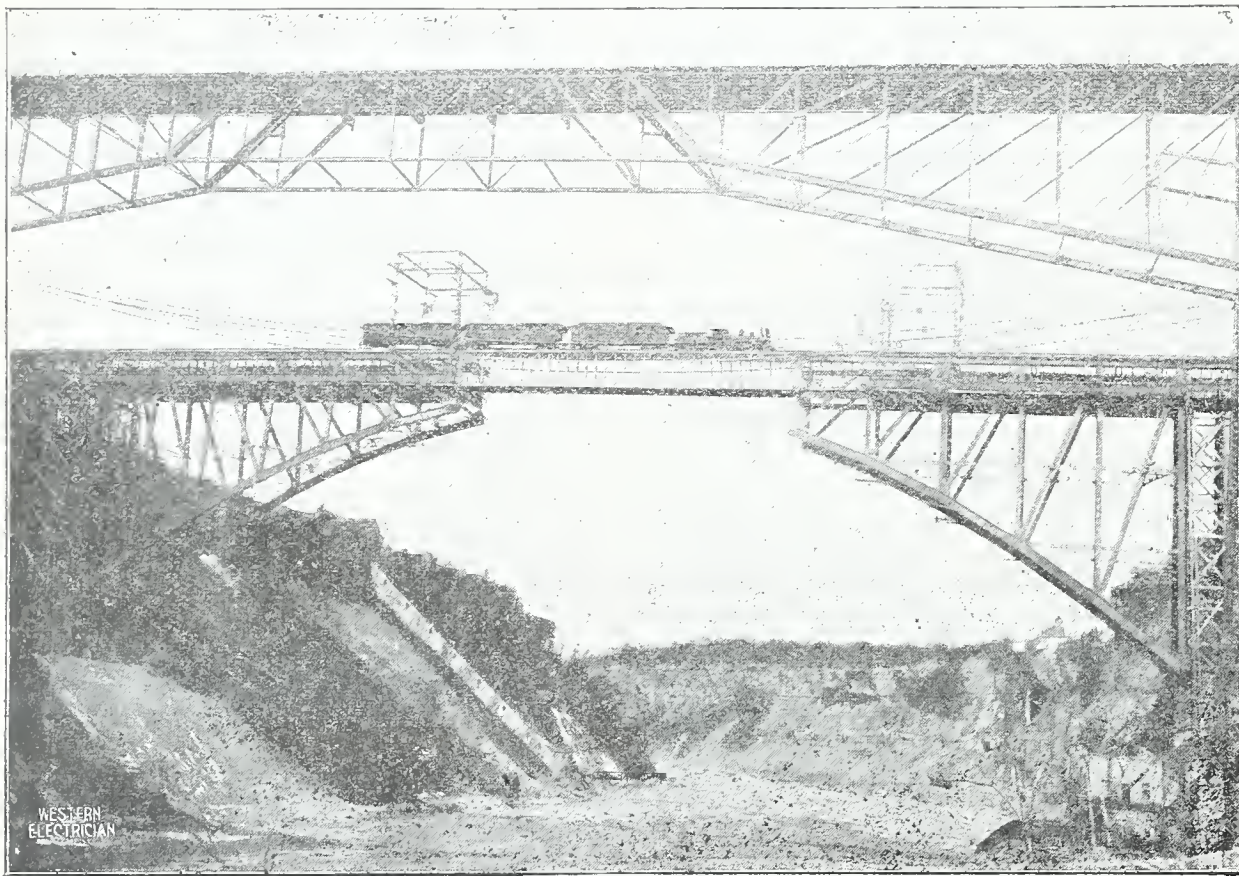
There is now in course of construction across the Niagara gorge at Niagara Falls a new steel arch bridge which will afford the first trolley car connection between the Dominion of Canada and the United States. The erection of the bridge is attracting much attention, not alone because of the dangerous nature of the locality, but also from the fact that it is being built to replace the old railway suspension bridge and right on the site thereof. All who have ever travelled to or from Niagara over the Grand Trunk railway will recall the suspension bridge on which the crossing of the gorge was made at the whirlpool rapids. It is this structure that is to give way to the new arch, and the illustration in connection with this article well portrays how the arch is being built beneath and at the sides of the

arch will contain 5,560,000 pounds of steel plates and angles in the form of columns, plate girders, braces, etc.; 218,000 lbs. of steel castings; 182,143 pounds of steel eye-bars and pins, and all of 30,000 pounds of wrought iron rods and turnbuckles.

Largest Tunnel in the World.

Two gangs of workman have just begun digging in Colorado the longest tunnel which man ever attempted to construct. The main bore will be twenty miles long, and connecting with this are subsidiary tunnels, with a total length of thirty miles. So, in reality, the task that has been put under way is that of digging fifty miles of tunnels, and every foot of this vast system will be under Pike's Peak, and the mountains that tower on each side.

The starting point of the main tunnel is at the foot of the mountain leading up to Pike's Peak, near the old town of Colorado City. This point is



NEW STEEL ARCH ACROSS NIAGARA GORGE.

suspension bridge, and this while the latter is in constant use by railway trains, carriages and pedestrians. Of itself the erection of a great steel arch across such a chasm as the Niagara gorge is a difficult task, but to place it on the site of a bridge of a different pattern in constant service adds materially to the difficulties of the undertaking. It is a work that calls for no small amount of engineering ability. The engineer in charge is L. L. Buck, who is thoroughly familiar with the locality. The first bridge on this site was commenced in 1848 and completed in 1855. This structure was of wood, the towers being of stone. In 1880, under Mr. Buck's supervision, the superstructure was changed to steel, and in 1886 the stone towers were renewed in steel. All this was accomplished without any interruption to travel.

When it is completed the new arch will compare most favorably with the bridges of its class in this country or Europe. The arch will have a span of 550 feet between the end piers, and trussed spans 115 feet in length will connect it with the cliff on each side of the river. The main span is formed by an arch with horizontal upper chords. On the New York state side the bedplates of the arch rest on abutments built on the Clinton limestone. On the Canadian side of the river the abutments rest on a concrete foundation. On both sides of the river the abutments are situated about half way up the slope between the water's edge and the top of the high bank.

In order to provide facilities for steam and electric railways, carriages, etc., the arch will have two floors or decks. The upper floor will be devoted to steam railroad facilities and the lower floor to trolley tracks, carriageways, walks, etc.

The contract for the erection of the bridge is in the hands of the Pennsylvania Steel Company, and considering the difficult nature of the task, the season of the year and the dangerous point of operations, it has made most rapid headway, and this without a single life having been lost. While the arch was sprung in April, the bridge will not be completed until June or July. It has been figured out that the

but a short distance from the railroads which span the country between Colorado Springs and Manitou. From here it runs almost due southwest. The further end of the tunnel is at the edge of the mountains at Four Mile Creek, over in Fremont county, Col., six miles south of Cripple Creek, and near the little town of Sunol. Two gangs of men, as stated, are working on the tunnel, one at each end. Just at present they are making progress at the rate of thirty feet a day. It is believed that the mammoth task they have undertaken will be completed in seven years from the first of the present month.

The main tunnel will pass directly under the cone of Pike's Peak, at a depth of nearly 7,000 feet and 2,700 feet beneath the town of Victor. Its average depth from the surface will be 2,800 feet, and it is designed to test the mineral deposits of the territory at these great depths. Thirty miles of laterals are contemplated, and these will pass underneath all the Cripple Creek district at an average depth of 2,800 feet. Cripple Creek, Victor Gillette, the various small towns and a thousand mines are to be made tributary to this vast system.

Under present circumstances the distance—the shortest way—from Colorado Springs to Cripple Creek is fifty-four miles. By way of the tunnel the two cities will only be sixteen miles apart. It is estimated by the contractors that the average cost per foot of excavation will be \$80. This makes the total probable expense of digging the tunnel and its subsidiary branches \$20,520,000. All of this sum the tunnel people expect to crush out of the ore their workmen will break while excavating or glean from the nuggets which may fall out of secret pockets so far below the earth's surface.—*San Francisco Examiner*.

A letter can be sent from one part of Paris to another quicker than a telegraph message can be delivered. The pneumatic tube system does it.

An English bicycle firm is now giving to every buyer an insurance policy against death, disablement, or loss of machine either by theft or fire.

Always Hope for the Young Inventors.

Young inventors should take courage from the fact that many an invention which has increased in popularity by years of use, and practically in its original form, was not the product of scientific training, but more like a spontaneous flash of sunlight projected from under a swiftly passing cloud. It had been known for a long time to physicians and chemists that certain gases produced a singular effect upon the nervous system, and that when breathed into the system, a person becomes highly excited and unconscious of his acts; but it was left to a young dentist (Wells, of Hartford) who had not enjoyed a scientific training, but was observant in his habits, and felt the value in his profession of some process for relieving the nervous terror of his patients while undergoing the various operations incident thereto, to notice, when a young man had recovered from the effects of the exhilarating gas, that he was not conscious when he received the wounds and bruises caused by the struggles and violent exercises which he had passed through while under its influence. At once the great truth flashed on him, that by breathing gases of this character insensibility to pain could be produced long enough to admit of surgical operations. He took the great responsibility of trying the first experiments, and soon the additional steps in this marvelous discovery were made—the choice of the safest articles for inhalation—and thus was introduced the greatest advance ever taken at one time in the healing art. Again, James Watt, while he modestly ascribes to Professor Black (of Glasgow) part of the glory of his improvements in the steam-engine, it seems plain from his own narrative that he made the great invention of the condenser without any assistance. It was simply a flash of genius that made it what we now see it, and was wholly his own. Science could give him the occasion of the defects of the old engine, but no hints as to the remedy. It was James Watt, mathematical instrument maker, earning fourteen shillings a week (\$3.50), who brooded over his little model until his conception of the condenser burst upon him as he was taking a stroll across Glasgow Green. Even as the Omnipotent Lawgiver ordained that praise should emanate from the mouths of babes, so have some of the most far-reaching and important inventions sprung from the lowly, of those untutored in the sciences.—*New Ideas*.

Books and Magazines.

"Wonderland '97," by Olin D. Wheeler, is the title of a publication issued by Chas. S. Fee, General Passenger Agent of the Northern Pacific railway. It is a story of the great Northwest comprising the country traversed by this road from the Great Lakes to Puget Sound, and its various ramifications in the great mining regions of the Rocky mountains and the scenic wonderland of the Yellowstone National Park. It is a charming piece of descriptive writing—eclipsing all previous efforts of the author—and the illustrations and typographical appearance of the book are marvellously pleasing and artistic. Next to visiting, in person America's—the world's—greatest natural wonderland, a perusal of this publication gives one the best idea of that region. The great mining fields of Montana, Idaho, Washington and Alaska are also interestingly treated. This book can be secured by sending six cents in stamps to Chas. S. Fee, G. P. A., N. P. Ry., St. Paul, Minn.

The story of the pursuit, capture and death of J. Wilkes Booth, the assassin of Lincoln, has been told a number of times and in several ways; but McClure's Magazine for May gives a version of it which is the first really full and accurate one. It is written by a relative of Colonel Baker and Lieutenant Baker, the detectives who organized and led the pursuit, effected the capture and disposed of Booth's body after his death; and it embodies their account, never before published, of all these transactions. The article is fully illustrated.

Iron Tools in Old Egypt.

An explorer recently found in Egypt a bronze bowl and a series of iron tools of forms quite unlike any known in Egypt, and they are thought to belong to an Assyrian armorer about 670 B. C. These tools, comprising three saws made for pulling, not pushing, one rasp, one file, several chisels and ferules, a scoop-edged drill, two center bits, and others, are of the greatest value in the history of tools, as showing several forms of an earlier date than was thought possible. They are probably of Assyrian origin.

The Conquest of Mechanism.

BY FRANCIS H. RICHARDS.

[Reprinted from the special number of the *Iron Age* for January 2, 1896, commemorating its fortieth anniversary.]

To the ancients, the world of mechanism was an undiscovered country. True, implements were known: and here and there an Archimedes or Hiero had obtained glimpses of something beyond. Later on, some even crossed the borders, but only to remain ignorant of the character and resources of this great and wonderful domain.

For centuries, conquest was restricted to the geographical world, and intellectual progress ran in scholastic channels. The geometers, it is true, had brought much order out of chaos, and the dawn of liberty inspired the Western nations with new hopes dimly understood. With the discovery and exploration of the Americas, followed closely by that of the Pacific, geographical discovery found its limits, and conquest was diverted to the world of societies and governments, with changing boundaries in the old and changing kinds—organizations—in the new hemispheres. Next, transportation—voyaging and railroading—became the active field for progress, and gave almost a new power to the liberal nations of the West.

Today, it may be said fairly that we have entered into full possession of this new domain of mechanism: that its conquest is complete. Some—many, indeed—of its fields have yet to be explored, and everywhere its resources more fully brought forth and utilized. But the broad valleys in which are the avenues of mechanical achievement have been discovered and mapped out. Henceforth, its development is not so much for the discoverer and pioneer as for the surveyor and the mechanic. From this on, the whole people come into mechanical environment and the world of mechanism becomes a native clime.

A century ago, Jacquard and Arkwright and a few others, only following, perhaps, the clock-maker of Nuremberg, had shown that combinations of cam devices could be organized to repeat the simpler mechanico-industrial operations theretofore performed by hand, and thus make steam-power available in new directions for increasing the results and efficiency of labor. These earlier mechanisms dealt with processes of narrow scope, in which simple steps were much repeated—as in those textile arts carried on by the operator as distinguished from the craftsman.

Even here progress was slow, encountering the powerful opposition of class prejudices and inertia. But gradually, facilities accumulated; the innovations became familiar, and, therefore, more tolerable to the non-progressive classes; the mechanical industries were transplanted to the colonies, where the "mechanic arts" obtained a higher recognition of their worth, and freer institutions gave a new stimulus to mechanical discovery. Thenceforth, the inventor invaded the very preserves of the craftsmen, creating new competitions and gradually driving the journeymen from their benches and the smiths from their anvils; finally impressing them all into the ranks of the mechanists, and filling their places with the old-time peasant classes, to whom the change brings a new light and higher civilization.

Four decades ago, when the *Iron Age* began its career, it found here and there—and most frequently of all, in the factories of New England—the factory mechanic, or "machinist," working at the production of machines for turning out, automatically, some of the simpler articles then made by hand. Though neither scientists nor mechanicians—and rarely much trained in any art—these resourceful men, working with scant facilities and methods all too empirical, but inspired with the faith and courage to try, carried on one of the greatest works known to history. Like soldiers in the ranks, they neither directed nor seemed to know the line of march or plan of campaign, but by an unstudied co-operation accomplished a revolution, effecting a conquest of surprising extent and character.

From the primitive art, the first step is the mechanical imitation of the hand process. A second and greater step—the restrictive reorganization, whereby simplicity is secured through the multiple use of the single modified element—accomplishes the revolution, and places the art, not at perfection, but close to it. After this, the development still goes on, and small gains, or savings, are effected in this or that detail: but the work now takes a new direction, and not the art, *per se*, but the production of ways and means for practicing it becomes the object, and are, in turn, subjected to the same general process of modification and reduction.

Almost any article of manufacture may be taken as an illustration, but few more properly so than the making of iron rods, of the bar-iron of commerce.

The power-hammer with its accessory appliances, elevated the iron-worker to a position of supremacy, and enabled his nations to dominate the march of civilization: but not until the imitative process was restricted and the hammer blow was made continuous by modifying the hammer face into a roll, and combining this in multiple into a rolling-mill was the destined revolution in the art itself actually accomplished.

Next came the development of the ways and means, the period wherein the problem of the rolling-mill itself—like a formula before a class—was worked out in all its varying expressions, and each factor given first and last all possible values. At this point, finally the real race of the giants begins: large mills are made larger and more powerful; auxiliary methods and appliances—both mechanical and metallurgical—are brought to its aid: the laws of supply and demand are coerced by far-reaching business combinations, until, having conquered one world—like the royal art it is—it reaches out into the domain of architecture and navigation, giving to our cities a new character, and transforming the fleets of all nations.

Forty years ago, the first step had already been taken, but the revolution was far from accomplishment. Rolled bars had a limited field of application and plate-work was scarcely more than experimental, whether for bridges or ships. What man, forty years ago, would have dared predict—if he could have foreseen—what has happened? Possibly Robert Stephenson, whose plate-bridge went too far: or Brunell, whose vision of the modern "Atlantic Liner" was crystallized too soon: or Roebling, who lived to see the rolling-mill make feasible the long-span bridge. More, probably not one, foresaw forty years ago even the quarter part of what, by the power of the rolling-mill, is attained.

In another field, progress not less remarkable has been made. Forty years ago, in every village smithy throughout the land, the anvil rang while the indispensable horseshoe-nail was laboriously drawn out by hand in small numbers, but of almost infinite variety in form, finish, size, and quality. Then, a good workman produced a mere handful in a day; now, a less-able operator—by the use of elaborate but durable machinery—produces a like quantity in a minute, and these uniform in every feature.

Instances such as this might be multiplied, only to show the revolution extended to the whole industrial field. The common pin, once an article of luxury and each costing a "penny" or more, is produced by four or five small machines, and one operator, one thousand a minute. So, too, of screws, where once the machinist with his "engine-lathe" produced one in an hour—and this of indifferent workmanship, the automatic screw-machines—a dozen of them attended by one man or boy—turns out many hundreds—and these of superior quality. The simple folding pocket-rule, that once cost one dollar and could be made with a "kit" worth scarcely twenty dollars, is now manufactured with a "plant" worth \$100,000, and is sold for a dime. Everywhere, the comparison is: A more extensive plant of relatively-high quality, using less labor of lower quality, and producing more and better goods.

The multiplication of individual cases has gone so far that the methods of procedure can be formulated into rules and laws readily applicable to each new requirement, so that the mechanic and the engineer need no longer "experiment" in the random manner formerly in vogue, but may adapt and organize the necessary combinations by following established principles. The question is no longer "Can it be done?" But "Shall we do it; and if so, how?" Nevertheless, here, as in other worlds of action, the Creator of all has set bounds where it is written: "Hitherto shalt thou come, but no further."

And finally, what power hath wrought this change? And what is its destiny? No one force or influence may properly be credited with the entire result; but, undoubtedly, freedom to enjoy the fruits of one's labor—be this of head or hand—is, primarily, creditable with the enormous advantages which have accrued to the public during these later decades from the development and extension of the mechanical industries; and no force is more potent in this direction than those enlightened laws, whereby the inventor is assured a fair opportunity for himself reaping a benefit, should he succeed in producing a useful improvement. No country—ours least of all—can afford to narrow these wise provisions, or restrict their just administration.

It is beyond the limits of such an article as this even to enumerate the results which are directly or indirectly the outcome of these forty years progress in mechanism. But one—which appears very close at hand—is the emancipation of mankind from the toiling for existence. Mere subsistence—food, clothing, shelter—sufficient for the strictly necessary requirements, is, or will soon become, practically free—to be had almost for the asking. Even now, the amount of labor required of the skilled mechanic to provide himself and family with those things which were considered "necessaries" by the

early settlers of New England is surprisingly small, averaging, most probably, hardly one hour per day—an amount still decreasing with the rise of the people generally in skill and intelligence.

From the vantage-point of this closing decade of the century what a transformation scene is presented to the observer looking back over forty years! History, it is true, presents many scenes of immortal achievement. But what historian has written such a story as these four decades, or recorded a conquest so fraught with importance to humanity? For centuries, school and college had equipped preacher and lawyer and doctor for life's work; but the masses toiled on. The plodding workers performed over and over again the unending round, and education came not to the rescue. What hope of progress, of widening humanity's horizon, while brain and muscle wearied with mere repetitions? But hope had not fled, and the genius of invention had breathed her spirit into souls of a new race.

The Greater New York.

It provides for a municipal chamber in two houses, constructed very much like a state legislature. It places at the head of the municipal government a mayor elected for four years, with a salary of \$15,000 a year, who has the appointing power and the veto power. The mayor's appointing power, however, is complete only for the first six months of his term. The practical work of city government is divided among eighteen departments. At the head of a number of these departments there are to be single commissioners, while others, as for instance the Park Department and the Health Department, are intrusted to boards of several members. All these commissioners are appointed by the mayor, and his appointments require no ratification. The mayor cannot make summary removals, however, except in the first six months of his term. The boards and commissioners have almost unlimited authority over their respective departments of administration. The mayor's function, then, is to occupy himself during the first six months of his four-year term with winding up and regulating the machinery; after that, he can only look on and let it work as it will without practical power to intervene. The financial authority under the charter is vested in a Board of Estimate and Apportionment, and not in the municipal assembly. The mayor, the city attorney, the president of the council, the head of the tax board, and the city comptroller, constitute this Board of Estimate and Apportionment, which makes the annual appropriations and fixes the annual tax rate. Its work goes to the municipal assembly, where no change can be made except by way of disapproval; and any reluctance to grant the board's appropriations can be overcome by the mayor's check upon the action of the assembly. It is the most complex system ever seriously proposed anywhere.—From "The Progress of the World," in *May Review of Reviews*.

A Remarkable Dredger.

The problem of maintaining a channel in the Mississippi river at low water is now believed to be solved by the use of a new and remarkable kind of dredger—a machine which, as described in the *Scientific Press*, San Francisco, will go through a sandbar at a speed of from five to ten feet a minute, cutting its way through a solid bank and leaving behind it a channel forty feet wide and twenty feet deep. Of course, it could not do its work at such an amazing rate as this if it were not for the water which it has to work with—this, in fact, is the secret of the whole performance. In front of this machine are six intake pipes, turned downward, and surrounding each of these is a cylinder fitted with knives and kept in revolution all the time, so that the knives cut and chew up the sand and mix it with the water. In this way the process goes all around the intake pipes, and in the latter the suction of great steam-driven centrifugal pumps is pulling away at the loosened mass of sand and water, immense solid streams of debris flowing in the pipes at a rapid rate. It is assumed that this method of maintaining low water navigation is practicable in all alluvial streams—applicable, in fact, to the Missouri, to the Illinois, to the Sacramento, the Volga, the Danube, the Hoogly, etc., engineering skill being able to calculate to the fraction of a foot what speed the current requires through the pipes to carry the sand in solution.

Most Important Discoveries of the Century.

In reply to an inquiry Self Culture expresses the opinion that the most important discoveries of the century are:

1. The invention of the steam engine.
2. The discovery and utilization of electricity.
3. The Bessemer method of making steel.

PATENT LAW ASSOCIATION.

An Organization That Aims to Dignify the Patent System by Correct Methods.

Report of a Recent Meeting and Synopsis of Talks on Patent Office Procedure.

How Inventors are Imposed Upon by Fake Schemes of Conscienceless Attorneys.

The Patent Law Association of Washington, D. C., is composed of about fifty of the leading patent lawyers and solicitors of the city including three ex-commissioners of patents and two ex-assistant commissioners. Provision has been made for the admission of non-resident attorneys making a specialty of patent law practice. The objects of the association are similar to the bar associations of lawyers in general practice. Though the organization is but three months old it has already secured the enactment of a law of great value in protecting the rights of inventors and patentees. A committee of the association is in consultation with Com. of Patents Butterworth on the adoption of new rules and regulations for the conduct of business before the patent office. Another committee has charge of the matter of the unlawful and unprofessional practice of attorneys, and are endeavoring to secure the adoption of a code which will prevent incompetent and unscrupulous attorneys from practicing before the patent office. An important object of the association is to establish for the use of patent solicitors a library which will contain law and technical publications of this and other countries of special value to the profession. Such an organization has been needed for many years, and is especially demanded in these days when men having no qualifications for the profession are permitted to ply it because the law fails to fix any qualification, and thus inventors and the public are humbugged by schemes and special inducements of so-called patent agents. The profession of patent solicitors is one that calls for a knowledge not only of the statutory laws, but of the laws of mechanics and it has been regarded a most honorable one, but if practices indulged in during the past year or two are continued, the practice will have to be regulated by the strictest kind of laws in order that the rights of inventors may be protected and the public not buncoed.

The officers of the association are: President, Gen. Ellis Spear; Vice-Presidents, E. M. Marble and W. D. Baldwin; Treasurer, James L. Norris; Secretary, F. Benjamin.

At a banquet given at the Hotel Raleigh on evening of the 8th inst, there were present a number of distinguished invited guests and the following members of the association: T. H. Alexander, Joseph C. Atkins, L. S. Bacon, W. D. Baldwin, F. Benjamin, A. T. Brown, Frank L. Browne, W. H. Doolittle, Arthur E. Dowell, J. C. Dowell, Frank L. Dyer, Leonard H. Dyer, Joseph R. Edson, Robert J. Fisher, Max Georgii, W. G. Henderson, Solon C. Kemon, H. S. Knight, W. C. McIntire, E. M. Marble, James L. Norris, John C. Pennie, F. W. Ritter, Walter R. Rogers, Ellis Spear, H. A. Seymour, F. C. Somes, E. B. Stocking, C. L. Sturtevant, Lloyd B. Wight, Ernest Wilkinson, and J. H. Whitaker. The banquet committee was composed of Messrs. W. H. Doolittle, W. E. Rogers, and F. C. Somes.

At the conclusion of the feast an hour was spent in interesting "talks" on patent matters.

REMARKS OF PRESIDENT SPEAR.

When the cigars were lighted the president, as an introduction to the informal speeches of the evening, briefly called attention to the objects of the association. He said that he hoped this social gathering of the members of the Patent Law Association, of Washington, marked the beginning of closer social relations between members of the profession in this city. It was sometimes a sad reflec-

tion to the older members, and especially so upon the occasion of the death of some member known in professional relations for many years, that they had been entirely, or in a very large degree unacquainted with his personal traits, his moral worth and his good fellowship, and it seemed to be a great and irreparable loss to have only partially known and appreciated a worthy man. Further, a more intimate social acquaintance, not only increased the pleasure of life but was advantageous from a professional point of view. But the association also has in view more important objects. It seeks to aid the patent office in the perfection of its organization and rules of practice, in obtaining favorable legislation and the defeat of measures which would injure the patent system, and in raising the standard of practice amongst those doing business before the office. The speaker said, that he hoped to see the day when it would be impossible for a man in practice before the office to transform the legitimate practice of an attorney into the business methods of a lottery. He believed the patent system of the United States had been the source and stimulus of that great mass of inventions which had organized the methods of modern society, ameliorated its condition, and been the distinguishing feature of the century; and to uphold that system and to advance and maintain the honor of the profession were objects worthy of the effort of every honorable and public spirited man.

WALTER F. ROGERS.

The chairman, after gracefully acknowledging the debt of the association to the member he would call upon to open, for the energy and capacity which he had displayed in the work of the association, announced Mr. Walter F. Rogers as the first speaker of the evening.

Mr. Rogers began by stating to the chairman that he desired to make the following claim:

"The combination in an orderly assembly, of positively driven commissioner and examiners, a reversing court, a reciprocating court, and operating means, consisting essentially of a vibrating, appealing bar, controlling a series of eccentrics, cranks, plungers and levers, substantially as described."

He then proceeded to say that the patent lawyer of all men should be excused for talking "shop." When the greatest tribunal in the world, the Supreme Court of the United States, had sat upon everything in sight, material and immaterial, it was impossible to view any concrete object without having suggested some famous decision. He said that he never went to a base ball game but that he had Mahn vs. Harwood in mind; that he never passed a hydrant but he seemed to see it stamped Flower v. City of Detroit; that he never ate a pretzel but that the very shape of the pretzel seemed to stand for Butler v. Steckel; that he never trod a pavement but that he refreshed his mind with the doctrine of Elizabeth v. Pavement Company; that he never passed a pretty woman on the street but that he had the single idea of Florsheim v. Schilling and so on. Addressing General Spear personally he said that the chairman's silver hair stood for Bene v. Jeantet; that he would publicly state, however, that nothing about the chairman reminded him positively, but only negatively of Smith v. Goodyear Dental Vulcanite Company; that his collar stood for Coon v. Wilson; that his collar-button whether *in situ* or *in transitu*, was the subject of the grave decision of Kremenz v. Cottle Company; that his shoes suggested Burt v. Ivory; that his hat which the general was not wearing now but which he hoped he might be able to wear a little later was marked with the classic title of Burr v. Duryee; and that presuming the honorable gentleman to be clad in the same manner as some of his younger brethren, he was suggestive of unmentionable decisions on certain unmentionables.

Mr. Rogers then said that he had no doubt he was intended by the chairman to act as a suggester, or conceiver of broad ideas which should be developed and possibly reduced to practice by those gentlemen of larger and riper experience who were present. He said that everyone at the board would be glad to have some of these gentlemen answer the question that had often occurred to him as one of the younger practitioners, why there should be nine

final courts of appeal instead of one patent court in Washington? Why there were so many appeals in interference proceedings in the patent office? If there were not too many divisions in the patent office? If it would not be well to have as a cardinal principle for the office the text "the search is the thing?" He said that the examination—the search of the art—is the vital and fundamental feature of patent work, that the money obtained from inventors and piled up in the surplus should be used to provide every facility both for the office and the inventor so that the tremendous mass of patents and publications might be classified, arranged and digested; that the great volume of copies of patents which had been heaped up in the top stories had flooded the upper floor, run down the stairways, burst over the banisters and submerged even the lower floor and cellar so that when he was law clerk one of his night-mares used to be that he was being buried and smothered under tons of copies of patents pouring over headquarters. He referred to the work the association had done in shaping legislation and directing public opinion to the abuses created by charlatans, and in many other matters and suggested that in all these fields it had legitimate work. It was his day dream to some day see the patent office made the great center of industrial information with a great scientific library, a laboratory, a work-shop and all the needed room and facility for making it a tremendous engine for public good; and he wanted to hear his specially qualified brethren say what they considered the practical means, and what the association might do toward accomplishment of such an end.

WILLIAM D. BALDWIN.

William D. Baldwin, second vice-president, said:

"Mr. President and members of the Patent Law Association: I am called upon to address you not only without preparation, but after (as our worthy president has told you), it was agreed that I should not be called upon to make any remarks on this occasion; I will, however, do the best I can.

My mental organization is such that I prefer to deal with concrete examples rather than with abstractions and therefore what I shall have to say will be mainly in the form of reminiscence. Although I have not yet reached the age of retirement from military service, though very near it, I am not only the senior patent practitioner here present, but with one or two exceptions, the oldest in the profession.

My acquaintance with the patent office began in 1851, and my actual practice in 1856. At that time there were about ten thousand patents in existence, while the number now issued is somewhere in the neighborhood of 582,500, so you can see what the younger members of the profession have before them in the future. I am an optimist and not a pessimist, and therefore do not concur in the opinion sometimes expressed that the old days were better than the present one; my observation and experience are to the contrary.

Prior to the organization of the government, the states individually granted patents. For some years after the organization of the United States, the government granted patents without examination, mainly concerning themselves with the title, which was then regarded as an important part of the specification. A patent was usually issued after a conference between the President, Secretary of State (then in charge of the patent office), and the Attorney General. It was stated in one of the older decisions, that but few of many hundreds of patents issued during this period were properly granted, owing to the failure to comply with the requirements of the statutes in regard to title. The head of the patent office, then called the Superintendent, did all of the work with the aid of one or two clerks. The first Commissioner apparently kept no books, but carried the receipts around in his pocket until they overflowed, when he went to the bank and deposited all that had not escaped in the meantime. As the result of the methods of doing business at that time, it is said that some five thousand patents were issued without being recorded, or without the fees being accounted for.

This gentleman had some peculiar notions as to patents, his idea being that they were too sacred to be divulged to the public, but must be preserved in inviolable secrecy. One reason for this probably was that he was a physician and in the habit of patenting many medical formulas which he did not like to divulge. He refused to furnish copies of patents to any one and it took one or two mandamuses from the court to compel him to do so, and even in cases of litigation he objected to submitting the patents to the jury unless they were specially sworn to secrecy. You can imagine how such conduct would be regarded now-a-days.

It was quite a common practice in those days for men to take out a patent, and if dissatisfied with it, to ignore it and take out another one a few years later covering the same ground. The re-issue was an out-growth of this system.

Prior to 1836 there was no special examination as to the novelty, and, in fact, the law did not require formal claims to be made. An amusing instance of this occurred with an old practitioner, Peter H. Watson, with whom I served my apprenticeship, who, having gotten into a controversy with the office on the subject of drawing claims, availed himself of the law and simply wrote a legend on the drawings, stating that A was a crank, B a cog-wheel, etc., and compelled the office to grant the patent in that shape. In fact, it was not until the Act of 1870, that patentees were required to make particular claims to their inventions. The rules of the patent office were simply an out-growth of the necessities of the case. I believe I have a complete set of all of them.

They began about 1834, in the form of suggestions to persons having business with the patent office. In the early days, prior to 1860, there were only two or three examiners, and no settled rules of practice, the Examiners being very much a law unto themselves, and consequently somewhat arbitrary in their actions.

In 1860 the entire patent business of the country was probably done by about one hundred firms or patent agents, as we were then called. Most of the agents were not lawyers, it being regarded as somewhat beneath the dignity of a lawyer to practice as a solicitor. I think I owe my professional success, and I may say without vanity that I have had some success, to the discovery which I had the sagacity to perceive, that a law

yer who could prepare the cases understandingly would be of great assistance to his clients, the attorneys and the courts. I was successful particularly in patent cases largely because my opponents, many of whom were much older men, did not understand legal matters. For instance, I once saved an important extension case where the petition had to be filed within a given time, by filing the petition as attorney with the revenue stamp then required affixed, and having my authority ratified by the applicant afterwards. My opponent was utterly unable to comprehend the effect of the subsequent ratification of a power-of-attorney and lost his case largely by his failure to comprehend this fact.

Another important case which I won turned upon the effect of the habendum clause in an agreement, and to my utter surprise I found that my opponent did not even know what the term meant.

In 1870 the number of applications for patents was about half that of the present time, and the business was done by about three hundred solicitors. There were at that time, I believe, only about three patent agents in Chicago; there are now over three hundred. Last year I believe over four thousand attorneys filed applications in the patent office. As there were about forty-two thousand applications filed, the average was ten cases to an attorney, so you can see that there is a munificent remuneration in store for some of us at this rate, particularly as a single firm is said to employ 110 clerks!

My experience leads me to believe that there are too many appeals allowed in the patent office. My suggestion would be to amend the law so as to grant patents for twenty-one years, but to require the payment of an annual fee, the result of which would be, as demonstrated in the case of Belgium, that at the end of five years about 95 per cent. of the patents would have expired and the patent office would not be choked up with worthless inventions to be bought up and re-issued to cover valuable inventions subsequently discovered, as used frequently to be done. That game, however, has largely been stopped by the decisions of the Supreme Court as to re-issues. I would allow only one appeal in the patent office and one to a court. Our Court of Appeals here has demonstrated its strength and efficiency and its decisions command the respect of the profession. I would also require the payment of a fee in every step of an application, including the payment of a fee by the losing party in contested cases at every such step, which would put an end to the innumerable dilatory proceedings by which an infringer is able to delay the issue of a patent, meanwhile profiting by his infringement.

One principal object of our association is to elevate the standard of practice in our profession, and I think much has already been accomplished in that direction. As chairman on the committee on ethics I have given the matter of the formulation of a code of proper practice much consideration, and must confess, as I have repeatedly stated in our meetings, that I am greatly puzzled as to how to formulate such a code. Every lawyer understands the code of professional ethics of a practitioner at the bar, but at the same time it would be somewhat difficult to put it into written form. We have succeeded in drawing a set of rules applicable to practice in the patent office which have been submitted to the association, and which rules are now under consideration, for the preparation of which much of the credit is due to one of our members, Mr. Wilkinson. The question of proper practice outside of the office has proved one of considerable difficulty and the committee would be very glad to receive suggestions from any one on that subject.

The opportunity afforded me by this organization of making the acquaintance of my professional brethren has been both profitable and pleasant. I think our profession is peculiarly one in which we are liable to work quietly in our own grooves, without much contact with each other except in contested cases. My own habits of life, of thought and of work have been such that my work has mainly been done in my own office, and I have had but little opportunity of becoming acquainted with my professional brethren, and I think we all see this evening how much pleasure and profit we can derive from cultivating each other's acquaintance. I can only assure you for my own part that I shall do what I can hereafter towards that end, and hope you will excuse me for having detained you so long.

J. ELFORTH WATKINS.

Mr. J. Elforth Watkins said:

"In looking back upon the mechanical triumphs of this century so soon to close, we find that the relations between scientific investigation—or discovery as it is better known—and invention have been so close that in many cases it is difficult to establish a clearly marked boundary line between what are called inventions and the unpatentable discoveries, which, in many cases are the underlying principles of the great epoch making appliances.

To this thought, which I presume is not new to any of you, I wish to add another, and that is this: If it has been difficult to establish the exact status of the discoverer and the inventor in the past eight or ten decades, what is to be done in the coming century?

I am not an old man, but during my life time—if I except the electric telegraph, which came into use a few years before my time—I have seen the birth of every one of the great electrical inventions, including the X-ray machine.

And what of the future? I believe we have turned over only a few pages in the enchanter's book, and that among the uncut leaves which we cannot now peer between, there will be found wonders, whose value we could not now appreciate with our finite minds.

Many men, versed in science, believe that we are now upon the verge of discoveries of untold value. Hundreds of telescopes are nightly pointed toward the stars; other investigators dredge the deepest seas or delve into the mines. Laboratories for chemical or physical investigations are found on every hand filled with earnest searchers after nature's secrets. The men who do these things, unlike those of a century ago, have well-trained minds, familiar with the work of those who have preceded them.

And so we live in the hope, I may say with firm conviction that great mysteries will be revealed to those of us who survive for a few decades.

To meet such conditions, associations such as yours must shape themselves.

I trust, I believe, that a great, a useful future is in store for American inventors and their best friend, the United States patent office.

PROF. O. T. MASON.

Professor Mason said that it always gave him pleasure to mingle with men in their departments of study and he was especially happy this evening, since his own studies related to the very earliest history of mankind, while the gentlemen around the table were, one and all, engaged in promoting and patenting the very latest human thoughts. He regarded the company of those interested in original ideas to be especially interesting.

Indeed, the only races of men that were worthy of the name have been those that were engaged in supplying their wants by new methods and discoveries, and the only time in the life of any man, when he is truly a man, is the moment when he is attentive to something new and original.

Professor Mason remembers with pleasure that

the gentlemen connected with the Patent Congress had invited him to speak on that occasion. He referred to his own studies as having been guided by the light of a torch or Roman lamp while, on this occasion, he could speak to those who were present under the inspiration of the electric light.

S. T. FISHER.

Mr. S. T. Fisher, assistant commissioner of patents, spoke as follows:

MR. PRESIDENT AND GENTLEMEN: Permit me first of all to thank you for your kind invitation to be present at the banquet of this association of which I hope soon to become a member. It seems to me that the establishment of this association marks an era in the patent system, which era I trust will be marked by many reforms, both inside and outside the patent office.

I hope to see the entire patent office building devoted to its original purpose, that is, to the use of the patent office.

I hope to see the salaries of the clerks increased so that they will be equal to the salaries paid in the other departments. This will prevent the patent office from being a raiding ground for other bureaus, as is now the case.

I hope to see the salaries of the members of the examining corps increased, especially in the higher grades, so that the office will become less of a training school for men who desire to practice patent law, than is now the case.

I would like to see the positions of Commissioner and Assistant Commissioner taken out of politics and placed on a plane with the federal judgeships, with salaries sufficiently large to make it an object for good men to retain the positions, but this perhaps is too much to hope for.

I would like to see the scientific library substantially enlarged.

I would like to see a classification division established, and in this connection I would state that it is not the intention to do away with the present classification system. That system is excellent in itself and has proved most useful. The new division is intended simply to supplement the present scheme of classification. In this new division there would be one or more copies of every patent that has ever been granted in this or any other country, all classified upon the basis of structure and not upon that of use; to give a specific instance, all cutting machines, whether used for cutting cloth, paper, tobacco, hides, skins and leather, fruit and grain, would be collected into one class and subdivided according to structure. This division would be open to attorneys and inventors as well as to the examiners and a search in the present draftsman's division supplemented by a search in the proposed classification division ought to show every pertinent reference.

I would like to see a stricter rule as to the qualifications of attorneys who practice before the patent office. The present rule that anybody who has not embezzled government fees entrusted to him may be allowed to practice before the office should be made far more rigid. Only persons of high moral character and a fair knowledge of patent practice should be allowed to act as attorneys. The methods of some of the attorneys now practicing before the office reminds me of a story I once heard of a hotel keeper in a small country town. A traveler came along, stopped over night at the hotel and after breakfast asked for his bill. "Twenty dollars," was the reply of the hotel keeper. "What, twenty dollars for a night's lodging and breakfast!" exclaimed the traveler, "Why this is outrageous, you have not given me value received." "Well," said the hotel keeper, "I admit that what you say is true, the bill is high, but the fact is, I need the money." I hope to see men of this stamp barred out and, in fact, every man who by reason of incompetence or deliberate misrepresentation cannot or will not protect the interests of his client, and who simply takes cases for the sake of the fees.

If all these things come to pass, and I confidently expect that most of them will come to pass and in the near future, (I may be permitted, perhaps, to say this as I am soon to sever my connection with the patent office), it will be a great day for the patent system and a great day for the country.

J. H. WHITAKER.

Mr. J. H. Whittaker addressed the association as follows:

MR. PRESIDENT AND GENTLEMEN:—Some few days ago I suggested to our worthy president that he arrange in his mind a list of those he would call on this evening and notify each person thus honored that something would be expected of him. Not receiving any intimation from him that he would call on me, I have rested easy and free from apprehension—not anticipating that anything would be required of me. I have enjoyed my dinner with no fear of my approaching fate.

Totally unprepared as I am, I can say that I am glad to be here tonight to make one of this worshipful company, and to listen to the good things said. There have been suggestions made by the previous speakers that merit our careful consideration.

During our last campaign we heard much of the value of silver. None contended that it was worth more than "sixteen to one" while a great many were heard to say that its value was far less, thirty-two to one, and there were those who held it in still lighter esteem. I think that is a mistake. Cases have come to my knowledge where silver medals worth about twenty cents apiece stamped with "For Excellence of Invention," when properly distributed have brought the fortunate individual, who had confidence in silver, fifty and a hundred fold. I feel certain that there has been a great undervaluation of silver among patent men.

In the use of its potent virtues it does not matter whether the invention for which it is given possesses merit or not, and I believe that there are cases where silver had been given in this way in which the invention was not patentable at all, or if patented the patent would not have been worth the paper it was written on. But this does not matter, the silver seed goes out and the golden harvest comes in.

But there comes a time when this comedy becomes tragedy to the luckless inventor, whose high estimation of silver (medals) has lured him to disaster.

But gentlemen I don't really favor the resort to such methods by those practicing before the patent office. Such clap trap dodges as these may succeed for a time, but in the long run they will bring discredit on the person who employs them and disgrace to the class to which he belongs. If nothing else will do it, it is hoped that the fear of criminal prosecution will clear the ranks of patent solicitors from those who are making the profession a by-word and a reproach among men.

Mr. E. M. Marble was called upon and said that while we had the best patent system and the best patent law in the world, both were full of flaws. He made several suggestions as to changes in the patent office system. The millions to the credit of the department in the treasury he favored applying to poor inventors who had no means of their own to prosecute their ideas.

Remarks in the same line were also made by other members of the association.

The Grant Monument.

One hundred feet above mean high water of the Hudson river the Grant monument stands, a solid pile of white granite 150 feet in height. The first 72 feet of this height is a cube of the Grecian Doric order, which measures 90 feet on all sides.

The entrance, on the southern side, is inclosed by a portico made up of a row of recessed columns. Above and behind the portico rises an almost blank wall, which will one day be relieved by the four equestrian statues shown usually in plans of the monument, and finishes in a parapet which shows upon its face the sculptured figures of Peace and War.

Above the parapet there starts abruptly a cupola, 70 feet in diameter, surrounded, as a relief, with Ionic columns.

Around the crown of the cupola a line of faces, surmounted with eagles, connects the columned drum with the pyramidal top.

The flawless granite of which the tomb consists is of dotted whitish gray, taken from a quarry of uniform grain, and is so light in tone that in the strong sunlight it is hardly distinguishable from marble.

Passing up the great steps which extend three-quarters of the way across the front of the structure, one comes first to the doors of the tomb, filling a space 16 feet 4½ inches in height and 9 feet in width. Of bone-dried ash, covered thickly with a composition of copper and tin, these doors weigh three and one-half tons. In each door are three panels, ornamented with 148 bronze rosettes, the twenty-four on the larger central panel being each twice the size of a man's fist, and all riveted to the doors with heavy bolts.

Beyond the doors, after a clear space of 38 feet is a 25-foot opening directly over the crypt beneath. The interior of the monument is cross-shaped, and the four corner arches are 50 feet above the floor. On these arches rests an open gallery, with an inner diameter of 40 feet, which is approached by two circular corner stairways, each with sixty-nine steps. Above the gallery extends the paneled dome, 115 feet above the floor, and below, through the opening, can be seen the lower floor, and still lower the crypt with the sarcophagus.

The pendentives formed between the circular dome and the arches are decorated in high relief sculpture, emblematic of the military and civic life of General Grant.

The windows are twelve in number, three in each side of the cross-shaped interior.

The crypt is reached by side stairways, which lead directly into the passage encircling the space in which rests the sarcophagus. This passage is shut in by square columns, which support the paneled marble ceiling.

The sarcophagus rests in the center of the crypt, 140 feet below the dome. Of all perplexing questions which arose in connection with the new tomb, the greatest was that of obtaining suitable material for the sarcophagus. The proper quality was found, after long search, in the quarries of Montello, Wisconsin, a porphyry of fine texture, brilliantly reddish in color. Cut from the solid rock, it is highly polished, reflecting the nearby surfaces as it rests in the crypt. The great block is 10 feet 4 inches long, 5 feet 6 inches wide, and 4 feet 8 inches high, and weighs five tons. In this immense block a space was hollowed out, into which the confined remains of General Grant were lowered. Then the capstone was set, and the sarcophagus again became as a solid block. It is plain, save for the simple engraved inscription at the head of the capstone "Ulysses S. Grant."

The pedestal on which the sarcophagus rests is a square of 10 feet 10 inches. The lower course of 1 foot 8 inches is made in sections, above which is a five-inch indented course. Still above this are two heavy blocks of marble, on which the sarcophagus directly sets. The total height of all is 7½ feet.

Some day the body of Mrs. Grant will repose beside that of her husband in a duplicate of the sarcophagus now in the crypt of the tomb.

One of the first specimens of the new Chassagne process of photography in natural colors to reach this country has come to Assistant Secretary Adey at the State Department from United States Consul Frank Mason at Frankfort. It is a large photograph of a beautiful American woman taken in Paris. The reproduction of the delicate flesh tints, as well as the more pronounced and brilliant colors of the dress and accessories, including a great vase of flowers, is remarkably true to nature. In his letter transmitting the picture, Consul Mason says the process marks a distinct epoch in reproductive art.

NEW INVENTIONS.

Electric Railway Switch.

When we consider the great number of inventions which have been made in the electric class, it seems that anything new is almost out of the question. Yet the subtle fluid is being continually turned into new channels, which, when they appear make us wonder that the thing was not done before. The invention of Willie G. Clark, of Philadelphia, Penn., (an electric railway switch) is an illustration of this idea, which if it be not entirely original, possesses unique merit.

This switch for which a patent has been issued—comprises in part a turn-table, on which the switching-rails are mounted, a vertical shaft supporting the turn-table and an armature on the shaft. The apparatus is electrically connected with the motor-car at the proper time, so that the motorman, without leaving the car can manipulate the switch at will.

The advantage of an invention of this kind, is at once apparent. It does away with loss of time in shifting switch—as in the old method; it saves labor, and, being under the motorman's control, is sure and safe. Although many things have been patented in the way of street railway improvements, there is still room for lots of improvements. The public and the railway companies wish the best that can be gotten. And the person who comes forward with a good thing will have a hearing and a "seeing."

Can-Painting Machine.

Painting a tin can seems a simple and easy operation. But the painting of a great many cans, quickly, is another and a longer story. Brush and muscle has with paint changed the "face of things" from ages remote; but there is no reason why the machine with its tireless arms and wheels should not do a great deal of the painting work now done by hand.

A machine which will rapidly spread paint on cans, is the lately patented invention of William S. Craig, of Chicago, Ill. In performing this work the cans are automatically fed to the machine, which carries them forward on a track to the painting brushes held in stationary position. At this point the can is stopped, and by a revolving device is made to present its surface to the paint spreaders. There is a device for supplying paint to the can, which, after it has been evenly stroked, is automatically released.

Bottle Washer.

It seems that a good bottle-washing apparatus should be something easy to invent. Yet cleaning a bottle is often not so easy an operation as some would suppose, as it not infrequently contains sticky matter and other substances that will not yield easily to water, cold or hot.

An invention in this class has lately been patented by Henry A. Ruter, of Boston, Mass. It is designed to clean bottles of any size and shape, and consists of a rod, an elastic band and the cleaning brush. The latter is pinioned to the lower end of the rod and remains straight while being pushed through the neck of the bottle, after which operation, the brush swings upward and outward, coming in contact with the side of the bottle. This action is accomplished by the tension of the elastic band, which, being attached to the middle portion of the rod and to the end of the brush, draws the latter in position as soon as it has left the neck of the bottle, and keeps it pressed against the surface, while being revolved. By this means, with the aid of water, quick and thorough work can be done.

A New Propeller-Ship.

It has always been the desire of mankind to get over water and land a great deal faster than the locomotive power which nature has given him, will permit. And this is especially so with your true American. If he makes 60 miles an hour he thinks this speed ordinary, and desires to make 100. When he obtains this, he will still desire to go faster. And this idea is illustrated in a newly patented invention for increasing the speed of steamships: which is the product of Clarence T. Wentz, of Williamsport, Pa. The design is for a ship having a series of propellers arranged on each side of the vessel, from stern to near the bow.

An even dozen propellers are mounted in compartments in the ship, in a fore-and-aft line and receive their motive power from twelve cylinders, each

located near a compartment and receiving its force from boilers arranged amidship. The compartments are let into the sides of the vessel at an angle, opening on the water, and the propellers—which drive the water directly backwards—come within the outer and regular line of the hull, preserved by covering the compartments, which otherwise would give the craft the appearance of notched log.

The speed-making ability of a vessel of this kind would, of course, depend much upon its boiler capacity. The distribution of force by an increase in the number of propellers does not necessarily augment speed. But if force is increased in direct ratio, there is reason to believe that great speed could be gotten. Where the lines of the ship can be preserved, (upon introducing side screws) great power exerted and "dead-water" avoided, the multi-screw propeller should be a success.

A New Mucilage Brush.

In the way of small, but useful things, is a mucilage brush, invented and patented by Edward G. Smith, of Schenectady, N. Y. This brush has a telescoping cylinder, in which is a spring-actuated rod carrying on its lower end the mucilage brush. This, when in the bottle, is kept from spreading by being inclosed by the cylinder, and can be drawn out without touching the mouth of the liquid's receptacle. The cylinder passes through the stopper, which is also used for grasping when operating—and it is only necessary to press the top when drawn from the bottle, and the brush will come out, without containing too much liquid, and assume its normal position again when the spring is released.

There is room for a good mucilage brush, for the kind most in use has such an uncontrollable desire to glue our fingers and to go all over the bottle before going in, that it is a nuisance.

Wave-Power Air-Compressor.

The inventor is trying to press compressed air to the front. And since so much has been done with the fluid we breathe, there is every reason to believe that the not distant future will unfold in this field, a strong and valuable competitor with steam and electricity, for public favor.

Wave-power, which has been so long unrecognized as a useful factor in force-making (although something has been done in this line) will now be used for compressing air. A patent, which embraces this idea, has been granted William A. Williams and Herrie H. Tuller, of San Francisco, Cal. The machinery for this invention consists of an air pump and a frame extending to the water and holding between its lower ends a float. The upper side of the latter is attached to the piston of the pump, so that when the waves move the float, the piston is driven upward, falling, of course when the wave recedes. There are suitable ports for taking in the air; valves for releasing and retaining the same and a conducting pipe for transmitting to the plant.

Of all methods for compressing air, that connected with the free and powerful waves, is surely the cheapest. With a practicable machine, the possibilities for light, heat and power are indeed worth working for.

Paper Rim For Bicycle Wheels.

Since paper has been so long used for making so many different articles, it is a wonder that it has not been employed in some manner in the construction of bicycles. Wood pulp after certain treatment becomes very tough, durable and attractive when manufactured into articles. If a bicycle frame could be made of paper, there would be no question as to its lightness—and that is a desideratum. Edward E. Claussen, of Hartford, Conn., has made a step in this direction by taking out a patent for a paper rim for bicycles. The rim is made by cementing together superimposed curved layers of paper so as to get a crescent shape in cross section. The paper is kept at uniform thickness, constantly narrowing to form the annular belt and by the narrowing feature, thickening and strengthening the center of the belt. With this invention there should be a gain in lightness, and perhaps in resistance; for a well prepared paper rim should be exceedingly tough and not liable to break.

Washing Machine.

A washing machine, which is intended to take the dirt from clothes thoroughly and easily, is the lately patented idea of James W. Stallings, of Dallas, Tex. It consists principally of a revolving clothes-carrying drum and a steam chest, in which the drum turns. The steam chest has its inner sides adjacent to the drum, with which it is curved concentrically; it has a perforated roof, steam pipes and a removable cover having edges which register with the chest. The inner surface of the drum con-

tains projections which come in contact with the clothes when the drum is revolved; and these with the aid of steam perform efficient work, which should make the portable steam washer an acceptable household article—especially in places where the slow process of knuckle and muscle now rule the washtub.

Flat-Iron.

The inventor who turns his genius to producing the little things which ease the burdens and care of the housewife, not only performs a valuable service for which he should be sincerely thanked, but he often strikes the path that is paved with hard dollars.

Mr. Charles Knapp, of Brooklyn, N. Y., has produced and patented a flat-iron that should find its way into the laundry department of the household, as it not only possesses the usual features of this useful implement, but has an attachment that saves labor. This consists principally of a hollow handle supported above the iron by hollow uprights, and a tube leading from the handle downwardly and outwardly in front of the iron. This tube has a nozzle, through which water is forced after coming from the handle of the iron, which is used as a reservoir. The use of the tube and nozzle for sprinkling clothes does away with the use of the basin or bowl, in which the hand must be dipped whenever the sprinkling process must be gone through; and this, with the facility with which this new apparatus seems capable of doing its work, should give it a welcome in the homes of those who have done or do their own washing.

Combined Cane and Umbrella.

William P. Hiscock, of Ithaca, N. Y., has had a patent granted him for combined cane and umbrella device, which, when in working order, allows a person to carry a "concealed" umbrella; for the latter is inclosed in the cane. There is nothing dangerous in this "concealed" water-shed; on the contrary by carrying it thus, it is all the more harmless, as its many little bad points are kept from disagreeable "entangling alliances." The umbrella is of the ordinary kind, having stick and ferrule; but the hollow stick, in which it is carried is made up of tapering, jointed sections adapted to telescope, and having at their ends peripheral recesses and sleeves encircling the sections to hold them in position when extended.

When the owner of an outfit of this kind has use for an umbrella, he just pulls it out of the scabbard, hoists the covering, closes the telescoping stick (if he so desires) and defies the elements. And there is another advantage in this arrangement. The umbrella thus protected is not so apt to be taken by "mistake" by absent minded people. Not being able to determine its quality by sight (when it is encased) the owner of even a poor one will hesitate before making an "unconscious" exchange lest he be the worse off for it. And then, many folks will be unable to tell the difference between the umbrella holder and a common stick—a big stick.

Attachment For Hoes.

That ancient and useful implement of the field and garden, the hoe, has been furnished an attachment, which no doubt will be welcomed by all sorts of people, who find profit and sometimes pleasure in digging. This combination hoe—the invention of John Timmins, of Leona, N. J., carries a cutting blade on its top, arranged in line with the hoe handle, the lower bent portion of which fits into a slot in the upper edge of the cutter, where it is secured by a bolt.

This is a simple invention; but it will find a ready field, for not only can large roots be cut with it, but the limbs of trees, undesired growths and other things, can be cut by simply "reversing the action" of the combination—from digging to chopping.

Manufactured Fuel.

Frank Batter, of Marshfield, O., has patented a process for making fuel from lignite and coal containing a low percentage of fixed carbon. This consists in subjecting the material to a low temperature in a closed retort to drive off the moisture and volatile products; then collecting and condensing the volatile products and allowing the gasses to return to the retort furnaces to be used as fuel after being subjected to washing. The residue is then taken from the retorts and broken into fine particles or powdered. This is then mixed with the oil and tar resulting from the condensation of the volatile products driven from the retort. The mass is pressed while hot and allowed to cool and re-absorb the oil and tar which is driven out by the pressing.

After this the mass is baked, separated into blocks and again pressed. One of the advantages of this process is that while the material used is comparatively cheap, it does not require inflammable matter in its make-up, other than contained within itself. There are various other methods of making "artificial" fuel, but near all—if not all—of them require additional material—tar, petroleum, etc., as aids to combustion.

A New Air-Ship.

Are we going to fly through the air, as free as the birds, bidding defiance to time and space—going to Europe on the "Bee-line Express," and otherwise spending our cash in aerial adventure and fun? This may come to pass. If it does not, it will not be on account of a lack of inventive effort.

To the solution of the aerial problem, Henry Heintz, of Elkton, S. D., has applied his inventive genius, which has resulted in a patent recently issued to him for an airship—a ship that looks like she ought to fly fast and far. The craft is designed to be on the balloon order; at least the balloon is a big feature in its make-up. It is long, narrow and pointed, and is supported above the car by a number of uprights. Each of the latter carries a parachute, which slides up and down the supporting rod, opening with the downward movement and closing with the upward. By this action, the parachutes provide a lifting power, an adjunct to the balloon which is intended to furnish lifting force not quite sufficient for floating the car. The car contains the motor, which furnishes power for the propeller and for operating the sliding parachutes. These are connected with the engine by ropes and pulleys, the former leading from a continuous pulley-rod, to the top of the supporting uprights. The car is scow-shaped; and the rudder extends straight out from the stern, beneath the propeller. Now let the mysterious air-ship, which has been so much "in the wind" of late, look to her laurels.

Car Hand-Strap.

There is a simple invention, made and patented by Geo. W. Clark, of Bayonne, N. J., which the street car companies might look into for the benefit of the traveling public—the public who have their upraised hands squeezed by the old fashioned strap, while endeavoring to hang on and keep from pitching into the laps of those fortunate enough to get a seat in a car. This new bidder for favor is a car hand-strap that has at the bottom of the loop a rigid grasping-piece which keeps the loop from closing and offers a firm hold to those who are compelled to ride standing.

Automatic Fire-Lighter.

There are a great many people who are startled when an alarm clock "goes off." And there are few who would not get wide awake in a hurry if one of these lazy-man wakers should start whirring in the night and strike a light at the same time. But this is just what the invention recently patented by Martin W. Lydon, of Lawrence, Mass., is intended for. The clock is connected with an upright situated near the former and holding a fuse, and a match. The mechanism of the clock is so adjusted that at any desired time it can be made to start its sleep-dispelling music, and at the same time draw a match across a rough surface which ignites it (the match) and sets fire to the fuse. And the sleeper is not only waked up on time, but is "lit up"—without the trouble of groping about in the dark for the match box.

Head-Gear and Light for Surgeons.

An electric light and head-gear for surgical use is the lately patented invention of Laird W. Nevins, of Chicago, Ills. In this invention two electric lamps are employed, one attached to the surgeon's forehead by straps, and the other projecting forward from the chest, and held in position by a band that encircles the operator's body. The lamps are connected by wire with a source of electricity, and provide a powerful source of light, which can be turned in various directions to meet the requirements of physical investigation.

The Heilmann Locomotive.

The Heilmann locomotive, which seems to be a structure carrying its own steam plant for generating electricity is exciting considerable interest among railway engineers. It will be remembered that an experimental engine was some time ago constructed, and the results were such as to induce the Western Railway of France to build two large locomotives on this system. On the new engines

several improvements have been introduced. An ordinary locomotive boiler drives six steam engines, which run at very high speed with an unusually high steam pressure. The engines when running at 400 revolutions indicate 1,350 horse-power. One advantage in having so many cranks is the reduction in vibration. There is coupled to the shaft at either end a six-pole electric generator, each being equal to 910 amperes under 450 volts. The electric current generated is passed to eight four-pole motors. This locomotive is of extraordinary size and weight, its length being 61ft. and weight 120 tons. The front is shaped like the bow of a battleship with a ram, the object evidently being to pass through the air at high velocities with as little resistance as possible. The frequent transformations of energy in steam engines, dynamos, and motors are justified by the fact that the loss from engines and boiler is only 26 per cent. This huge locomotive has attained a speed of 90 miles an hour with a light train, but in ordinary working with a train of 350 tons it is expected to run easily at 75 miles an hour. —*Trade Journal's Review.*

Photography in Natural Colors.

Consul-General Mason at Frankfort, sends an interesting description of the process discovered by M. Chassagne, of Paris, for producing, by purely chemical means, on sensitized plates, paper or films, photographs showing the actual colors of the subject as they appear in nature.

The process of M. Chassagne, to which he has devoted many years of study and costly experiment, is exceedingly direct and simple in its practical application, and may be briefly described as follows:

An ordinary sensitized gelatin plate is first treated by immersion in a colorless solution of certain salts, the secret of which the inventor has not yet revealed. This plate, being exposed in a camera, receives a negative impression, and is developed, fixed, and finished in the ordinary manner, producing a monochromatic negative precisely similar in appearance to any other. That is to say, the treatment of the dry plate by the mysterious liquid of M. Chassagne entails no visible effect in the appearance of the negative which is produced therefrom.

From this negative there is then printed, by the usual process of contact and exposure to light, a positive, which may be made on sensitized paper, or film, or glass gelatin plate, which has been likewise treated before printing with the same colorless and unexplained solution. Thus far, all is monochromatic, and does not differ in appearance from any ordinary negative and the paper print or transparent positive made therefrom. The mirical now appears in the fact that the treatment of the negative plate and positive print with the liquid solution has imparted to the latter the occult instinct of selective absorption; in other words, the power to absorb and assimilate from solutions of the primary colors the exact quantity and proportion of each tint that is required to produce all the hues and gradations of nature.

The positive is now passed successively through three colored solutions—blue, red, and green—and from these it takes up by absorption the proportionate amount of each color that is required to give the colors and gradations of tint which were present in the natural subject of the photograph. If this photograph is a portrait, the flesh tints become warm and vital; the colors of the eyes, hair, and every detail of hue and texture in the costume, jewelry, etc., are faithfully reproduced. If the subject is a landscape, the sky becomes blue or gray as in nature, the grass and all the elaborate gamut of green, brown, and purple shadows, which occur, for instance, in a wood or group of trees of different species under strong sunlight, are brought out with marvelous fidelity. Such a positive, printed on glass as a transparency, hung in a window and studied from behind with a strong monocle, produces the effect of looking upon the actual landscape. Paintings, either in oil or water colors, are reproduced so literally as to fairly deceive the eye, in all except size, the photograph copies being, of course, generally much smaller than the originals.

From this brief description it will be obvious that the discovery of M. Chassagne is embodied in the chemical composition of the four liquids, one of which is colorless, one blue, one green, and the other red. The process of using these liquids, which is so simple as to be within the easy reach of any professional or good amateur photographer, has been patented in all civilized countries where patents are granted, but the composition of the liquids is thus far a secret, and is not described in the applications.

Having perfected his process to a point where his pictures commanded the admiring wonder of French experts, M. Chassagne went, on the 15th of January this year, to London, where on two occasions about

the 20th of that month he demonstrated it at the laboratory of King's College, in presence of Sir Henry Trueman Wood, Captain Abney, president of the Camera Club, Professor Thompson and Mr. Herbert Jackson, of King's College, all men of the highest authority in photographic science. The demonstrations were so complete, the results, when Sir Henry Wood and Captain Abney operated with English apparatus on plates treated in their presence with the liquids brought by the inventor from Paris, were so successful that the process became the sensation of the day in London, and the whole invention, with its patents granted or pending in all countries, was sold on the 25th of January for a large sum to a British syndicate that had been hastily organized for its purchase.

The relative proportions of the four liquids employed in ordinary use are: Four liters of the colorless solution to one liter each of the blue, the green, and the red, and this quantity of each will be sufficient to color six hundred positives above cabinet size.

No explanation is offered of the scientific principle through which this power of selective absorption is conferred by the primary liquid upon the sensitized plate, paper, or film nor of the nature of the reactions which take place at any stage of the process. The whole demonstration was so new and astonishing that the English experts ventured no theory to account for the miracle that had been wrought before their eyes. Without complete information as to the materials used and the exact chemical nature of the liquids, the character of the reactions upon which the result depends can only be vaguely guessed. The important fact is, however, that they do occur, and that with materials properly prepared, the practical process is so simple and should be so inexpensive as to be available to every photographer, and thus open a new era in reproductive art.

A Remarkable Engineering Feat.

A great section of mountain was recently torn off by 10,000 lbs. of powder, lifted several feet straight up and then pushed bodily forward 40 or 50 feet, trembling over the gorge below the dam, and then falling with an awful roar 125 feet, to remain hereafter for all time as the bulwark of the great dam being built to impound water for the city of San Francisco. The dam is forty-three miles east of the city. For two months or more preparations had been made for the monster blast, in common with another blast that is nearly ready. The plan was to cut tunnels into the side of the mountain at various points above the bed of the creek and to place in these tunnels, first, great stores of black powder, which ignites slower than giant powder, and, therefore, has more pushing power and less shattering effect. On the surface and in places through the mountain side were placed big deposits of giant powder for the purpose of shattering the mass and lifting it up. According to plans the black powder when it exploded would hurl the mass straight forward, making a bridge of granite across the gorge and blocking the stream. The plans were carried out with the greatest care. Danger was constantly feared from the great mines of powder, but all went well and the blast was finally ready. A lot of insulated electric wires, connecting with each deposit of powder and attached to exploders, were gathered into one circuit in a tunnel across the gorge and above the blast. The signal was passed, the switch closed, and a wonderful scene instantly followed. The side of the opposite hill, composed of great bowlders and masses of granite in dikes, quivered, rose from its bed of centuries, and shot out thousands of little squirming tongues of dust, that gave the whole hill a peculiar, fuzzy appearance. This was for a fraction of a second. A growl, like the angry diapason of the ocean, sounded deep down in the hill, and before the spectators recovered their equilibrium after the artificial earthquake the mass was falling. When the dust cleared away it was found that the blast had dislodged a mass of rock 400 feet up and down stream and an average of 60 feet in height, completely bridging the canyon. The engineers estimated that the amount dislodged weighed about 150,000 tons. The rock was thrown exactly as the engineers had planned.—*Railway Review.*

The editor of the Batavia "Republican" is doubtful of the success of the horseless carriage as a pleasure vehicle. He says: "Young men who take their best girls out riding will continue to find in the old way a decided advantage, for in the motor carriage it will never be possible to wind the reins around the whip and let the horse look out for itself while they talk of the weather and kindred subjects."

A machinery exhibition will be held in Munich, Bavaria, from June 1 to October 10, 1898 to which manufacturers of motors and machine tools of all countries are invited.

The Deepest Well in the World.

The deepest well in the world will soon be completed near Pittsburg, Pa. It is now more than one mile deep, and when finished it may reach down two miles into the earth. It is being bored in the interest of science. The object in penetrating so deeply is to determine just what the interior of the human footstool is like. From a commercial point of view the well was a success long ago. At comparatively few feet below the surface both gas and oil were struck in paying quantities, but the company owning the plant determined to dedicate it to science and invited Prof. William Hallock of Columbia College to carry on a series of temperature investigations as the hole is carried deeper and deeper into the earth. The results of these investigations are very interesting, and it is the opinion of several well-known scientists that the ultimate results of the boring will prove to be of widespread economic as well as of scientific value. Most significant of all the facts so far ascertained is that the well grows steadily hotter as its depth increases.

It is the intention of the well company to continue the boring process until something entirely new and original is developed. This may seem to be a crude way of putting the statement, but it has long been a theory among well-informed men that if it is possible to go deep enough some new geologic condition or economic feature would be found to exist. At the very least they claim natural steam would be encountered, or the well walls would finally become so hot that water could be pumped down cold and pumped up in the form of steam, and thus the natural power of the future be obtained. At any rate, there is material for much speculation, and the interest becomes greater in increased ratio as the drill descends, and a startling event is expected to happen almost any day. One remarkable feature of the well is that the gas found near the surface is now used to operate the powerful engines which do the drilling. Thus the natural power already issuing from the well is utilized for the purpose of deepening it.

Taking the temperature of a deep well is a delicate operation. It is a 12-hour task, although most of that time is put in in anxious waiting. The thermometers used are known to scientists as maximum thermometers. They will record up to the limit of the hottest medium in which they are placed, but the mercury cannot fall below this maximum point until it is reduced by mechanical means. They are made on the same principle as a clinical thermometer. The hole through which this mercury rises has a little twist in it just above the bulb. The heat will drive the mercury up the tube until a maximum point is reached. If the thermometer is brought into a colder climate the mercury will attempt to drop back into the bulb, but cannot of its own weight pass the twisted point. It therefore forms a reliable record of the highest temperature it has encountered in its passage down the well. After being brought to the surface the mercury can be shaken back to the bulb. Two thermometers are operated side by side in the well, so as to account for any individual variation in the instruments. They are lowered to distances of fifty feet apart, all the way down the well. A complete descent of the well occupies twenty minutes, and, of course, the same amount of time is required for the ascent. The thermometers are lowered and raised on a thin steel tape working on a windlass, and for the sake of greater accuracy in the record they are left in the well over night.

It is found that the temperature of the earth rises in increased ratio as the center is approached. Within the wells which have been bored the rise has averaged about 1 degree Fahrenheit for every fifty feet, with a very small but yet perceptible increase as the bottom is approached. The temperature of the Pittsburg well at a depth of 5,000 feet was found to be 120.9 degrees Fh. At the bottom the temperature is 128 degrees Fh. The well in its present stage is 5,502 feet deep. This gradual rise is found to exist all over the world, although it is more marked in some places than in others. In a deep well near Wheeling W. Va., the temperature is 51 degrees at the top and 110 degrees at the depth of 4,500 feet. In the Sprenberg salt well, near Berlin, the temperature is about 47 degrees at the top and 188 degrees at a depth of 4,170 feet. In the Schaladabach salt well, near Leipsic, the surface temperature is about 51 degrees, while at 5,740 feet it runs up to 135.5 degrees. External conditions seem in no way to affect the temperatures of the wells. Work on the boring of the Wheeling well was stopped at one time for two years. An oak plug was placed in the top and the well was left untouched. When opened, the well was found to have filled with fresh water to within forty feet of

the top, yet when the temperatures were taken at various depths they were found to be identical with those taken when the hole contained nothing but air. Unlike a shallow well, the surface was colder than the bottom, proving that very little circulation even of water takes place in a hole five inches in diameter.

Scientists no longer believe the center of the earth to be a molten mass. They believe it to be very hot, but yet cooling day by day, just as a spent cannon ball cools toward the center. This would explain why the rise of temperature is so gradual as the depths of the wells are increased. According to the condition already encountered, the boiling point of water, 212 degrees, should be reached at a depth of two miles. This is, of course, for places where the surface offers no unusual evidence of heat beneath. In geyser districts the increase is much more rapid. For instance, near Boise City, Idaho, the comparatively shallow artesian wells furnish very hot water, which is used for domestic purposes in the houses.

Professor Hallock was asked if it were practicable to utilize directly the internal heat of the earth. "I should say it would be practicable," he replied. "The heat could be used in the form of steam. If water was encountered at the proper depth it would be in the form of steam, which could be raised to the surface and used direct. On the other hand, if the bottom of the hole was dry and hot, water might be pumped down cold and returned as steam. It could then be utilized in the most practical manner. A method something like this is employed at the German salt wells in Sillesia. The well hole is bored until a stratum of salt is reached. Then water is poured in and allowed to become thoroughly impregnated with salt. The solution is then pumped to the surface and the water is evaporated, leaving commercial salt in sufficient quantity to make the well a good paying institution.

"The bottom of these salt wells are hot and in the Schaladabach well the temperatures reached 135 degrees Fahrenheit. At the present time this well is the deepest in the world, but it will remain so only a short time, as it is the intention of the Pennsylvania company to carry the well on Peters creek to a depth of 6,000 feet at the very least. It may be carried still deeper, the company being much interested in the scientific outcome of the boring. Besides, this very deep boring may develop some feature of the internal construction as yet unknown to us. The hole extends down through a thick stratum of shales that overlie the coniferous limestone of the region. Some of the deeper strata do not come to the surface until they reach a point toward the middle of Ohio. It would, of course, be premature to make any statement concerning any development except the constant increase of heat. That, however, is likely to continue, and it may in the course of time come to be utilized. The earth could then be drawn upon like an immense storage battery and the creation of what would be veritable artificial geysers would be not infrequent.

"Some time ago I measured the temperature of the deep well near Wheeling, W. Va. The conditions surrounding it and the ore on Peters creek are practically identical. Ordinary United States signal service maximum thermometers were used, and no especial precaution was needed to prevent circulation of the air. The thermometers were lowered and raised and the depths were measured by a steel wire. The upper parts of the wells have steel casings or lining extending to a depth of 1,500 feet or more. The rest of the well is in shale. In the Wheeling well an oil sand occurs at a depth of 3,000 feet. In the Pittsburg well gas was discovered at a depth of 2,285 feet in sufficient quantity to operate the twenty-horse-power engines which operate the boring cable. I found that the temperature rose 1 degree in 80 or 90 feet near the top, while the increase got as high as 1 degree in 50 feet near the bottom. Inasmuch as we penetrated some 3,700 below sea level, it seemed worth while to attempt barometer readings, but the instruments used proved ill adapted to the work, and the results were unsatisfactory. Samples of air were also taken from the bottom, but they have not yet been analyzed. The thermometers used were inclosed in heavy, sealed glass tubes to protect them from pressure, and were operated in pairs. The two always agreed to within 0 degrees 2 minutes Fahr. Two thermometers were placed in an iron bucket, three feet long and three inches in diameter, on the end of the wire, and two were in an open wire frame, 260 feet from the end of the wire. The temperatures at depths of 100, 200 and 300 feet were determined with other thermometers lowered into the well.

The probable condition of the interior of the earth is a question which has attracted much attention in the scientific world. The British association has seized every opportunity for investigation in Europe, and the temperatures of several deep wells have been taken. The investigations of Mr. E. Dunker of Halle, Germany, in regard to the Sprenberg well, not far from Berlin, were of marked scientific value. So also were his observations at Schlada-

bach, near Leipzig. These wells are both full of water, which interferes somewhat with the investigations. Nevertheless, the results, as already pointed out, are definite. Our own dry wells, however, offer better facilities for scientific investigation, and measurement of temperature is being watched with interest by our scientists. At present the outcome of the investigation is purely scientific, but it has its practical aspects, in view of the economic condition which will exist if a way is invented to utilize the inclosed heat. It is certainly only a question of digging deep enough and of raising the heated water to the surface.

"The well on Peters creek is being dug on the American plan, which is to raise a heavy drill on a derrick cable and to hoist it up and down after the method of a pile driver. The constant blows on the rock cause the drill to sink gradually through it. In Europe diamond drills are used. Ordinary black diamonds are set in the end of a steel bar; the latter is turned around constantly, the diamonds cutting their way into the rock beneath. The latter way is more expensive in the matter of tools."

Prof. Hallock is making his investigations at the instance of the United States geological survey, which is at the present time making every effort to determine just what lies under the United States. His investigations open up a new field of research which will undoubtedly henceforth engross the attention of our scientists. The earth, through its products, has been indirectly harnessed before, but here is a scheme to capture its internal fires and cause them to furnish the power with which to run our factories, light our houses and warm our dwellings.—*Theo. Waters in Washington Star.*

A Caution to Inventors.

There are about a dozen firms in New York city, says the New York Press, doing a rushing business in worming fees from prospective patentees by false pretense and misrepresentation. Presently some of them will be in the penitentiary, where they should be, according to the following description of their method: "An acquaintance of mine," says the Press man, "in the West asked me by letter to investigate a certain firm for him. The firm had secured a patent on his invention, and was trying to sell it, as he thought, without letting him in for his rights. I visited the firm, and introducing myself as a merchant, asked if they had such and such inventions, at last mentioning that of the Westerner. Yes, they had his patent, but it was not possible just then to get at the papers. They could assure me, however, that everything was all right, and they wanted to sell. 'What would they take?' I asked. They could not say without first consulting with the inventor and patentee; they would write at once and communicate with me. I left my address. A week later I received from the inventor a letter written to him by this firm of patent lawyers. It concerned my visit. Here is an extract: 'Naturally, your device was the first shown, and he appeared to be interested, but stated that he only wished to consider inventions in that line so far as foreign countries, more particularly European, were concerned, and we informed him that, although patents had not been granted in those countries, yet arrangements had been made for their protection. He desired us to set a price on England, France and Germany, and, without being informed on the subject, we placed at random \$5,000 on those countries, and he quickly stated that these figures were out of his range * * * We trust you will discover the importance of foreign patents, as those countries are in better financial condition than ours at the present writing.'

"There is a lie in nearly every word of that letter. I am strongly tempted to mention the name of the firm. It might save some credulous inventor not only his money, but his patent. Here was a deliberate effort to belittle the value of the Westerner's invention in his own eyes, and at the same time a bid for additional fees for taking out foreign patents. Let inventors take warning."

Notwithstanding the failure commonly attending attempts hitherto made to obtain from spiders, gathered collectively for the purpose, an amount of silk sufficient for industrial uses, it is now claimed by M. Cambolle, a French naturalist, that the Madagascar species of this insect is susceptible of management capable of some practical results in this line. He has found that the spider of that country is capable of producing at the beginning of its work more than one hundred yards of thread per hour, increasing in quantity until it actually produces more than one hundred and fifty yards in that length of time. His experiments also show that this thread has about the consistency and strength of the thread yielded by the silkworm that is fed on mulberry leaves. A peculiar little machine winds the threads on bobbins as soon as it issues from the spider.

PATENT ON AN OLD INVENTION.

Device for Weaving Tape and Narrow Belts,
from Siena, Italy.

To the Inventive Age:—

If the reader will refer to the specifications and drawings of patent, No. 334,320 granted to Miss Eugenia Wernicke, he will see a kind of harness or series of healds in which wires are stretched between two parallel bars of the frame. Each wire has a ring or hole through the center for the purpose of stringing the alternate threads or filaments of a warp; the other warp threads passing between the rods freely from one cross-piece to the other. This is a type of weaving apparatus in which the harness is worked by the hand up and down without any connection with pedals or other mechanical device. It is interesting to see a patent issued within the last few years for a folk apparatus which has a very wide distribution.

In the collections of the United States National Museum there are some very interesting objects of this class. The one longest known is from the northern boundary of the United States in the neighborhood of Lake Superior and was taken from the hand of a Chippewa Indian woman by Mr. Schoolcraft, and he has figured it in his Archives. Fortunately, this specimen has been in the possession of the United States for forty years and is now to be seen in the collections in the museum. A narrow board of beech-wood $\frac{1}{2}$ inch thick and about 8 inches wide is carved into open filigree work at the top and bottom leaving a rectangular space about 8 inches square. The central portion of this middle part is excavated on both sides so as to leave a frame $\frac{1}{2}$ inch wide around the margin and a thin portion enclosed within this frame. The wood is cut away so as to preserve a number of upright thin rods standing in the middle, each one of which is pierced at the center for the reception of the alternate filaments of a set of warp threads.

This frame was used for weaving narrow garters, and belts of various stripes and patterns used by the Indians in making up their ceremonial dress. It lay unobserved until Colonel Stevenson and Frank Hamilton Cushing brought from the Zuni Indians, in the western part of New Mexico a large

bands, tape, garters, belts, hair ribbons and other objects of this class; and persons were found who remembered very well how the apparatus was used; and their descriptions tally precisely with the processes now employed by the Zuni Indians.

From Doctor W. J. Hoffman, it is ascertained that among the Pennsylvania Dutch this harness has been made stationary in the front end of a box, the rear end of which is fitted up with a real answering to a yarn beam in a loom. The same sort of shuttle is employed in Lancaster, Pennsylvania as among the Finlanders.

In this search for parentage Miss Elizabeth Lemke Saalfeld, East Prussia, has taken great interest and sent the Museum half a dozen specimens of the same apparatus used in various parts of eastern Germany for weaving tape and belts.

The most highly developed specimen that has come to the Museum is from Siena, Italy, a figure of which is here given. In essential parts this apparatus is like the Hoffman specimen from Lancaster, Pennsylvania. There is the harness of wood, wooden slats, each one of which is perforated in the middle and a revolving cylinder answering to the yarn beam of a hand loom. As on the Lancaster specimen, there is no ratchet for stopping the yarn beam; a stick being placed between the spokes of the cylinder and its upright supports. An iron ratchet serves to stop the yarn beam in the Italian form. It would be very interesting to this writer to know that this device existed also in Spain.

It is necessary to inquire whether, among the apparatus used by the Spanish folk in weaving, a device answering to the simplest forms above described could be found. The discovery of this apparatus, which in all respects is similar to the patent No. 334,320 in so many places is evident to this writer's mind that it has not originated independently in each one of these areas, but has been carried about as the necessities of the case have arisen.

O. T. MASON

Washington, April 17, 1897.

The Famous Howard Cassard.

The Howard Cassard, the famous steamer designed by Robert M. Fryer, has been sold at Baltimore, and towed to Philadelphia, at which place her new owner, Com. Albert Box, will cut her down into a steam yacht. There are many peculiarities about the Cassard's construction, the chief feature being her slight beam to length, being but 16 feet extreme breadth to 222 feet in length.

This curious vessel was illustrated and described in the INVENTIVE AGE of August 1895. The designer and builder was a Mr. Fryer, of Alexandria. It was expected that inasmuch as owing to the slight beam the minimum resistance would be encountered this style of vessel would be able to maintain remarkable speed, but a practical test showed the absence of sufficient motive power and the "razor-back" model cannot, therefore, be considered a success.

DEER PARK

On the Crest of the Alleghanies.

To those contemplating a trip to the mountains in search of health or pleasure, Deer Park, on the crest of the Alleghany Mountains, 3,000 feet above sea level, offers such varied attractions as a delightful atmosphere during both day and night, pure water, smooth, winding roads through the mountains and valleys, Cricket grounds, Ball grounds, Golf links, Tennis courts, and the most picturesque scenery in the Alleghany range. The hotel is equipped with all adjuncts conducive to the entertainment, pleasure and comfort of guests.

There are also a number of furnished cottages with facilities for housekeeping.

The houses and grounds are supplied with absolutely pure water, piped from the celebrated "Boiling Spring," and are lighted with electricity. Deer Park is on the main line of the Baltimore and Ohio Railroad, and has the advantage of its splendid Vestibuled Limited Express trains between the east and west. Season excursion tickets, good for return passage until October 31, will be placed on sale at greatly reduced rates at all principal ticket offices throughout the country.

The season at Deer Park commences June 21, 1897.

For full information as to rates, rooms, etc., address D. C. Jones, Manager, Camden Station, Baltimore, Md.

A French engineer has discovered a method of transforming the whole of wood into a gas, having, he says, a power four times greater than that yielded by bituminous coal. Owing to its richness in carbonic oxide it may be used in the manufacture of various chemicals, such as oxalic acid, and at a much lower cost than at present.

Our Patent System.

The Boston Advertiser is one of those narrow, snarling publications that looks upon the patent system as a humbug. It defines a patent right as mere "gift from the public." It looks at but one side of the case. It does not consider for a moment the benefit accruing to the public through the genius of inventors. The Washington Post takes issue with the Advertiser in a leading editorial as follows:

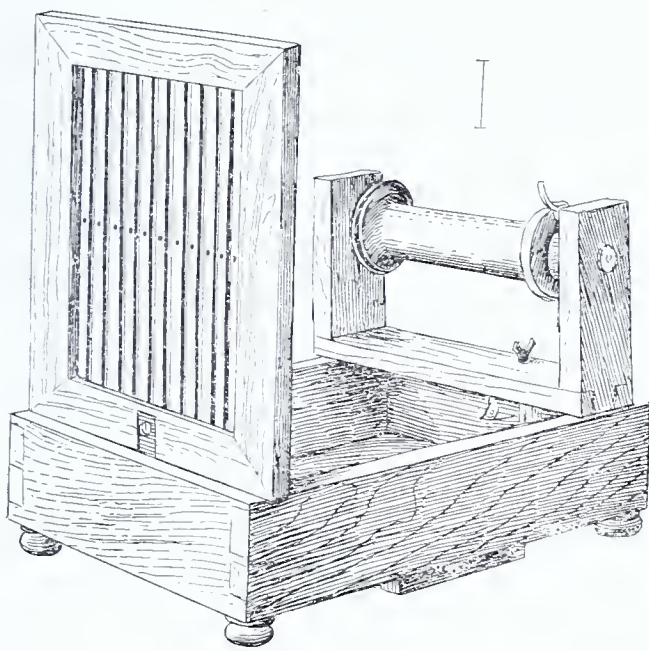
"We have always supposed that the establishment and maintenance of the patent system of the United States furnished a splendid illustration of shrewd, sound, far-seeing business policy on the part of our government. We have never harbored even the slightest suspicion that it was intended to promote the interests of individuals at the expense of the public. It has seemed to us that the statesmen who, more than a century ago, devised and set up our great plan for promoting invention, and all the thousands of statesmen who, since that time, have kept the system in active operation, were moved by a desire to promote the general welfare, and had taken the best possible way of doing so. In common with all intelligent observers of the results of our method of stimulating the inventive faculty, we have been convinced that no other country, except those which have borrowed ours, has so good a plan. It is not in the least altruistic. Its central idea is to get for the public all the benefit that can be derived from discoveries that are made in applied science. If we might consider the government as an individual, we should say that, in this matter, he displayed a broad, comprehensive selfishness—a shrewd and, at the same time, statesmanlike regard for his own interest, and only so much regard for the interest of inventors as was deemed necessary to keep them at work.

But this view must be erroneous if our erudite contemporary, the Boston Advertiser, is correct in defining a patent right as "simply a gift from the public." The "gift" consists in protecting the inventor or owner of a patent in the use of his invention for a term of years, just as a copyright protects an author. It is this protection which keeps thousands of minds employed in efforts to find out new and useful ways of doing things, new and useful ways of promoting the comfort, convenience, happiness, and prosperity of mankind. We do not represent the inventors as any more selfish than the government. They may have no philanthropic sentiment of purpose. But they know that a patented article must be desirable in order to be salable, and that, in order to render it desirable, it must meet some general want. It must save labor or material, or both, or it must promote health or pleasure. The system is a sagacious business arrangement between the people at large, represented by the government, and the individuals who invent. Neither side is altruistic, both sides are in it for business purposes, but the people have, thus far, had decidedly the better end of the bargain.

The Advertiser insists that the patent laws need amendment, and we are not inclined to assert that they do not. We hope, however, that, if changes are made, they will not be based on the theory that a patent is a generous gift. Thus far the Patent Bureau has not cost the government a cent. At this time there are some millions of money in the treasury that have been put there by the Patent Office after defraying all of its expenses. When the amending comes on it will be in order for Congress to provide some way by which all the receipts of the office shall be devoted to the object for which it was created—the encouragement of invention.

The Advertiser complains of the occasional abuse or misuse of a patent. If it will point to a single good thing on earth that is not open to the same objection; if it will indicate any department or branch of any human government that has never made mistakes, we shall be enlightened; but that will not convince us that the inventors, the men who have supported the Patent Office and who have paid millions of surplus into the treasury, are recipients of gifts or bounties."

A New York electrician has discovered a method for preserving eggs in an edible condition for a number of years. The only successful method now is to soak the eggs in lime water, which closes up the pores of the shells and kills any germs which may be attached to them. Under the most favorable condition, however, this method will not preserve an egg for more than three months. The new method is much more complicated. It is well known that an egg shell is more or less porous, and that air passes into the egg and hastens its decay. In preserving eggs by the new method the egg is first placed in a vacuum chamber, which draws the air from the interior. The eggs are then painted with a composition which renders them airtight. After this they will be placed in barrels of water and subjected to an electric current strong enough to destroy any germ life which may be present.



number of frames of this class made by using wands or rods for the frame portions, and thin strips of reed or splints of wood for the healds. With this apparatus the Zuni women construct belts and garters in plain weaving, in striped patterns, and also in diaper patterns employing the hand as well as the heddle in shifting the warp. Subsequently to the acquisition of these specimens, Consul General Crawford sent to the United States National Museum two pieces of apparatus identical in their essential parts with the Chippewa specimen of Schoolcraft's. The occurrence of the self same device in Michigan, New Mexico and Finland awaken the inquiry whether these might have been independent inventions in areas wide apart, or, whether they may have originally come from the same source.

In the Historical Museum, in Bristol, Connecticut, are two specimens of a similar device with some additional parts for resting on the ground and using the apparatus, if necessary, for a batten.

Inquiry from the "Hartford Courant" elicited information from half a dozen sources in Connecticut that 50 years ago such devices were very common in country houses where the girls would knit hat

MONEY IN INVENTIONS.

Partial List of Patents Sold During the Month as Shown by the Records of the Patent Office.

(Consideration from \$1 to \$100,000.)

No. 622,040. William L. G. Appleby inventor, Horace W. Dennett, assignor, to Wm. L. G. Appleby of Germantown, Md. Mail Catching and Delivering Apparatus. Assigns all his right, title and interest.

No. 493,463. Edwin Armitage inventor, John Wood, assignor to Thomas Milburn of Toronto, Canada. Machines for Painting Fabrics. Assigns one undivided fourth of his interest.

James H. Auble inventor, to James M. Graham of Lawrenceburg, Ind. Motor Mechanism and its Application to Horseless Carriages. Assigns an undivided half interest.

Arthur H. Andrews inventor, to Charles R. Harris of Williamsport, Pa. Bicycle Hubs. Assigns one-half interest.

No. 578,706 D. B. Adams inventor, R. N. Graham, Assignor, to The Globe Nozzle Co., of Charleston, W. Va. Nozzles. Assigns all his right, title and interest.

Edward L. Ashley, inventor, to the Scovill Mfg. Co., of Waterbury, Conn. Tack-Fastened Buttons. All his right, title and interest in said invention.

Lee Anderson inventor, to Wallace B. Howard and Alexander Staggs of Paris, Texas. Arms for Telegraph Poles. An undivided fourth of his right, title and interest.

No. 582,595. John A. Anderson inventor, to Ezra M. Southworth and Junius Beebe of Wakefield, Mass. Bicycles. An undivided two-thirds of his right, title and interest.

Clarence E. Alford inventor, to Marshall P. Gatchell of Gunnison, Colo. Sage Brush Grubbers. Exclusive right to said invention.

Wm. Arthur inventor, to the Newark Watch Case Material Co., of Newark, N. J. Watch Case Springs. All his right, title and interest.

Frederick Anderson inventor, to William E. Henry of Bradford, Pa. Pipe Clamps. Assigns all his right, title and interest.

No. 579,745. George Eiserer inventor, to the American Measure and Mfg., Co. of Chicago, Ill. Liquid Scales. Assigns all right, title and interest.

No. 570,820. Chas. E. Egan inventor, Winfield S. Kaufman assignor, to Sterling L. Bailey of Chicago, Ill. Switch Board. Assigns an undivided half-interest.

Joseph Ebenhoch inventor, to Arthur Kahn, New York, N. Y. Incombustible Wicks. Assigns an undivided half of his interest.

Daniel B. Easley inventor, to David B. Ashley of Bryant, Ark. Wire Cotton Ties. Assigns one-half of his interest.

No. 560,199. Lewis F. Earle inventor, Waldron H. and Wm. B. Rand, assignors, to Thomas Watson of Boston, Mass. Cuff Buttons. Assigns an undivided quarter interest.

No. 562,595. George C. Eselin inventor, Peter Jos. Dietz, Assignor, to E. H. and E. H. T. Daniels of Milwaukee, Wis. Oil or Gas Burner for Stoves. Assigns his entire right, title and interest.

No. 583,302. John Ewart inventor, to Joseph D. Ewart of Lawrence, Mass. Cistern Valves. Assigns one-fourth of his right, title and interest.

No. 563,364. Hugo F. Engels inventor, to Frank Yulg of Jersey City, N. J. Racing Sulkies. Assigns one-half of his interest.

No. 611,867. Henry J. Ennis inventor, to Thomas A. Kasey of Salem, Va. Detergent Compounds. Exclusive right, title and interest.

George M. Ervin inventor, to the Johnson Co., of Lorain, Ohio. Railway Switches. All his right, title and interest.

No. 622,885. Frank Crawford inventor, to F. B. Fargo & Co., of Lake Mills, Wis. Apparatus for Making and Preserving Records. Assigns his entire right, title and interest.

No. 582,154. Edward C. Clapp inventor, to Laroy S. Starrett of Athol, Mass. Micrometer Gauges. Assigns his entire right, title and interest.

Carv S. Cox inventor, to Lee L. Gray of Fresno, Cal. Raisin Seeders. An undivided half of his right, title and interest.

Geo. W. Cope and Wm. L. Bertram inventors, to The Toledo Stove Co., of Toledo, Ohio. Design for Cook Stoves and Ranges. Assign their entire right, title and interest.

No. 548,367. William C. Caldwell and Fred. G. Cook inventors, to Albert P. Jacobs of Detroit, Mich. Feed Boxes. Assigns his entire right.

No. 613,721. Engine Church inventor, to The

International Novelty Co., of Tacoma, Wash. Bicycle Rests. All his right, title and interest in said invention.

No. 355,381. Joseph L. Chapman inventor, to William H. Mattson of Sharon Hill, Pa. Pressure Gauges. Assigns his entire right in said invention.

No. 517,790. Casper L. Cohn inventor, to The Hygienic Co., of Boston, Mass. Mouthpieces for Telephones. Assigns his entire right.

Chas. H. Chapman inventor, to Levi Wallace of Ayer, Mass., and Walter F. Stiles of Fitchburg, Mass. Ball Bearings. All his right, title and interest in said invention.

No. 543,333. Sanford W. Carter inventor, to Oscar K. Trego of Denver, Colo. Ink Wells. Assigns his undivided one-half of his right, title and interest.

Julius J. Czepull inventor, to Alfred B. Sheaffer of Lancaster, Pa. Compositions for Solidifying, Concentrates and the Processes for Making same. Assigns an undivided half of his interest.

Ferdinand Coirin inventor, to David Shaw and Walter Lumsden of Paterson, N. J. Combined Toy and Slate Pencil Sharpener. Assigns an undivided half interest.

No. 582,264. Wilbert W. Cadle inventor, to Wm. H. Weeks of Hazleton, Pa. Game Apparatus. Assigns one-half of his entire right.

No. 396,272. Richard Crocker and John Diehl inventors, to the Racine Economy Spring Co., Vehicle Springs. All his entire right in said invention.

No. 351,626. Robert H. Cornett inventor, to Maggie L. Whitford of La Plata, Mo. Laundering Machine. All his right, title and interest in said invention.

Frederick W. Chesson inventor, to the American Ring Co., of Waterbury, Conn. Design for Metal Mounts for Furniture. Assigns his entire right.

Albert L. Crandall inventor, to Jesse S. Lee Rochester, N. Y. Thill Coupling. An undivided half of his interest.

Charles S. Coolridge inventor, to Wm. W. Edge of Troy, Ohio. Luggage Carrier. An undivided half of his entire interest.

No. 632,029. William N. Cranwell inventor, to Robert H. Wright and George O. Gillingham of Baltimore, Md. Design for Garment Supporter. Assigns an undivided two-thirds of his interest.

John A. Corlstedt inventor, to George F. Spencer of Newark, N. J. Attachments or Devices for Forming Annular Sheet Metal Rings. All his right, title and interest.

No. 582,981. Joseph A. Claus inventor, to the Northrop Loom Co., of Saco, Maine. Shuttle Box. Assigns entire right.

Wm. H. Cavniss inventor, to Wm. McCoy of Helena, Ark. Car Couplings. An undivided half of his right.

Geo. H. Carney inventor, to James T. Lovett of Salt Lake City, Utah. Sash Holder. Assigns his entire right, title and interest.

No. 580,305. George Clair inventor, to B. F. Cochran of Lothrop, Mo. Hydrocarbon Burners. Assigns his entire right in said invention.

Henry D. Cockburn inventor, to Wulschner and Son of Indianapolis, Ind. Tail-pieces for Stringed Musical Instruments. Assigns his entire right.

John A. Calhoun inventor, to Esther M. Bulman, S. W. Stott and Wm. A. Reinhardt all of Buffalo, N. Y. Design for Toy Balloons. Assigns to Bulman one undivided third, to Stott an undivided seven twenty-fourths, and to Reinhardt an undivided two twenty-fourths of all his right, title and interest in said invention.

Robert Cowen inventor, to the Boston Woven Hose and Rubber Co., of Boston, Mass. Apparatus for Manufacturing Pneumatic Tires. Entire right.

No. 633,789. Walter F. Collins and Frank C. Schmitz inventors, to George F. Kelley, of Borough of Sewickley, Pa. Jacks. Assigns an undivided third of his right.

No. 363,274. Wm. P. Bonham inventor, to G. W. Cleveland of Fayetteville, Ark. Harrow. Exclusive right to manufacture, sell and vend.

Daniel E. Bennett inventor to Nina F. Hill of Falmouth, Maine. Alarm Locks. An undivided half of his entire interest.

No. 608,786. George W. Brown inventor, to Robert A. Christy of Colorado Springs, Colo. Dress Skirt Supporters. Assigns an undivided two-thirds of his interest.

No. 628,307. Charles Barr inventor, to A. M. Kohler of Ashland, Ohio. Thill Couplings. An undivided half of his interest.

Addy A. Boss inventor, to A. C. Varney of Detroit, Mich. Automatic Temperature. One undivided third of his interest.

No. 604,252. Charles S. Bird and George R. Wyman inventors, to C. S. Bird of East Walpole,

Mass. Machine for Cutting Paper Tubes. Assigns his entire interest.

No. 291,341. Warren T. Butler and George H. Hathaway inventors, Oliver E. Chapman and Herbert W. Smith, assignors, to the F. L. Gaylord Co., of Ansonia, Conn. Apparatus for Sanding Car Tracks. Assign their entire right, title and interest in said invention.

John F. Brazelton inventor, to George C. English of Butte, Montana. Scale Weights. An undivided half of his right, title and interest.

William C. Bishop inventor, to Peter R. Albers of Fort Wayne, Ind. Coin-Controlled Vending Machine. Exclusive right to said invention.

No. 621,912. Henry Bardsley inventor, to the Knowles Loom Works of Worcester, Mass. Box Motions for Looms. Assigns his entire right.

Levi H. Bigelow inventor, to John F. Gibson of Fremont, Mich. Locks. Assigns an undivided half of his interest.

John W. Bryan inventor, to Wayne B. Venters of Richlands, N. C. Combined Car Couplings and Brake Pipe Couplings. Assigns an undivided half of his interest.

Edward H. Giesy inventor, to Alfred M. Stearns of Wyoming, Ohio, and Henry H. Giesy of Lancaster, Ohio. Refrigerators. Assigns his entire right, title and interest.

Wm. E. Grigg inventor, to Samuel S. Diamond and Franklin E. Diamond of Woburn, Ill. Mop Wringers. To each an undivided third of his interest.

Lorenz S. Grossman inventor, to Herman D. Berner and Jacob J. Mayer of Cleveland, Ohio. Faucets. Assigns entire right, title and interest.

Simon P. Graham inventor, to the Pastime Lawn Mower Co., of Detroit, Mich. Lawn Mower. Assigns his entire right, title and interest in said invention.

John H. Gitman inventor, to the King and Hamilton Co., of Ottawa, Ill. Corn Shellers. Assigns his entire right.

George E. Gay inventor, to Albert B. Franklin of Melrose, Mass. Self Indicating Register. An undivided half of his entire right.

No. 580,614. Emery Grover inventor, to William Carter of Needham, Mass. Computing Scale. Assigns one half of his interest.

William Grunow Jr., inventor, to Zalmon Goodsell of Bridgeport, Conn. Depressible Rail Systems for Electrical Railways. An undivided half of his right, title and interest.

No. 583,050. Arthur W. Grant inventor, to The Rubber Tire Wheel Co., of Springfield, Ohio. Roller Bearings for Vehicle Wheels. Assigns his entire right, title and interest.

No. 573,179. James A. Goodner and James M. Chritton inventors, to Geo. H. Adams of Crestone, Colo. Rotary Engines. Assigns an undivided third of his interest.

No. 496,477. Wyman H. A. Godfrey inventor, D. L. Akey and A. N. Lampman assignors, to Lowery and Fenn of Coldwater, Mich. Attachment for Tobacco Pails. Assign an undivided one-half part of their interest.

No. 488,274. John H. Gray inventor, to James Gray of Watkins, N. Y. Metal Columns. Assigns his entire right, title and interest.

No. 365,349. Cornelius W. Guerrant inventor, to Mathew P. Jordan of Danville, Va. Tobacco Packing Machine. An undivided fourth of his interest.

No. 454,520. James E. Gibbs inventor, M. B. Walker assignor, to James E. McFarland of Greensburg, Pa. Quilting Frames for Sewing Machines. Assigns all the right, title and interest.

Verner R. Gates inventor, to Vincent C. Wall of Sherman, Mich. Rotary Engine. Assigns an undivided half of his interest.

John H. Gilman inventor, to King and Hamilton Co., of Ottawa, Ill. Corn Shellers. Assigns his entire right, title and interest in said invention.

No. 628,156. William W. Green inventor, to Robert O. Green of Fort Dodge, Iowa. Machines for Punching Eyelet Holes in Boot and Shoe Uppers. Assigns an undivided half of his interest.

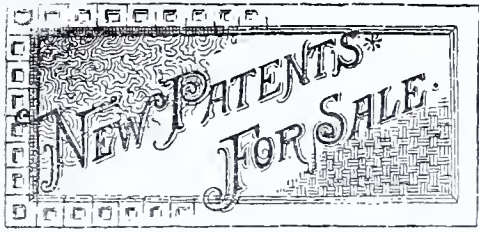
No. 577,741. Herbert N. Gail inventor, to E. D. Rockwell of Bristol, Conn. Trolley for Electric Railways. Assigns an undivided one-half of his interest.

No. 572,792. Olus Gates inventor, to John P. Kirby and Edward J. Breen of Estherville, Iowa. Hog Catching and Lifting. His entire interest.

John Gross inventor, to Felix B. Tait of Decatur, Ill. Scoop Boards. Assigns his entire right, title and interest.

Ralph Gregory inventor, to Frank K. Allen of Craig, Mo. Thermostats. An undivided half of his right, title and interest.

No. 519,811. William L. Gerard inventor, to H. H. Murray of Burlington, Kans. Disinfectant Cups. Assigns his entire right, title and interest.



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DEER PARK, on the crest of the Alleghenies, is just now being advertised by the management of the Baltimore & Ohio road. This is one of most delightful summer resorts easily accessible from Washington and contains superb accommodations in the way of hotels and cottages. The season opens June 21st; until June 10th parties can address D. C. Jones, Manager B & O, Baltimore, for full information.

The Baltimore & Ohio Company, it is announced, has given an order for 3000 freight cars, in addition to the rolling stock ordered during the past year. The order will aggregate \$1,500,000. It is understood that the Pullman Car Co., will fill the entire order.

The American Bell Telephone Company will receive a premium of over \$2,696,100 from the sale of its recently authorized issue of 23,650 shares of stock at the commissioner of corporation's price of \$214 per share. Last year the company offered stockholder's 21,500 shares at the commissioner's price of \$200 per share. All but 4,255 shares were taken by the stockholders, these shares later bringing 203½ by auction.

The Japanese House of Representatives have passed a bill appropriating a sum of \$ 0,000,000 to be devoted to increasing the armament of the army and navy.

Classification of Patents.

Subjects of invention are divided into 226 classes and assigned for examination to 34 examining divisions of the U. S. Patent Office.

Inventors will be interested in the following alphabetically arranged list by classes of all patents granted up to January 1, 1897:

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Patents Pending.

There were 11,599 applications for patent pending on May 4, 1897, divided by periods as follows: In arrears under one month 2,278; between one and two months, 5,638; between two and three months, 2,892; between three and four months, 791. The weekly issue of patents, designs and trade-marks now exceeds 500 in number.

HAVING recently converted their establishment into a union shop, making it the only union establishment of the kind this side of Philadelphia, the firm of Newton & Co., type-founders of this city, now appeal more vigorously than ever for work in the electrotyping line, assuring that they will give the best class of work, with least delay and prices as low as others. The prices for electrotyping have been so greatly reduced in the last few years that it is fast superseding the ancient process (stereotyping) and besides the face being copper, it will last longer and give much better service.

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The Laird & Lee Vest Pocket Dictionary easily leads all other similar publications. It contains 30,000 words and 5,000 synonyms, besides much useful information and miscellaneous statistics wanted in everyday life.

An interesting and important trade conference will be held in Phila., on June 1, in connection with a meeting of the Advisory Board of the Philadelphia Commercial Museum. President McKinley and a number of members of his Cabinet, together with representatives of the Diplomatic Corps at Washington, have accepted invitations to be present. Delegates will attend from Canada, Mexico, Guatemala, Salvador, Honduras, Nicaragua, Costa Rica, Colombia, Venezuela, Brazil, the Argentine Republic, Paraguay, Uruguay, Bolivia, Chili, Peru, Ecuador and other American countries.

Two additional telephone cables are to be added to those already connecting England and France. There are to be two circuits in each wire, so that with the cable already laid, six wires will be available for public use. It is proposed to extend the facilities for international telephoning to the larger commercial centers of the two countries.

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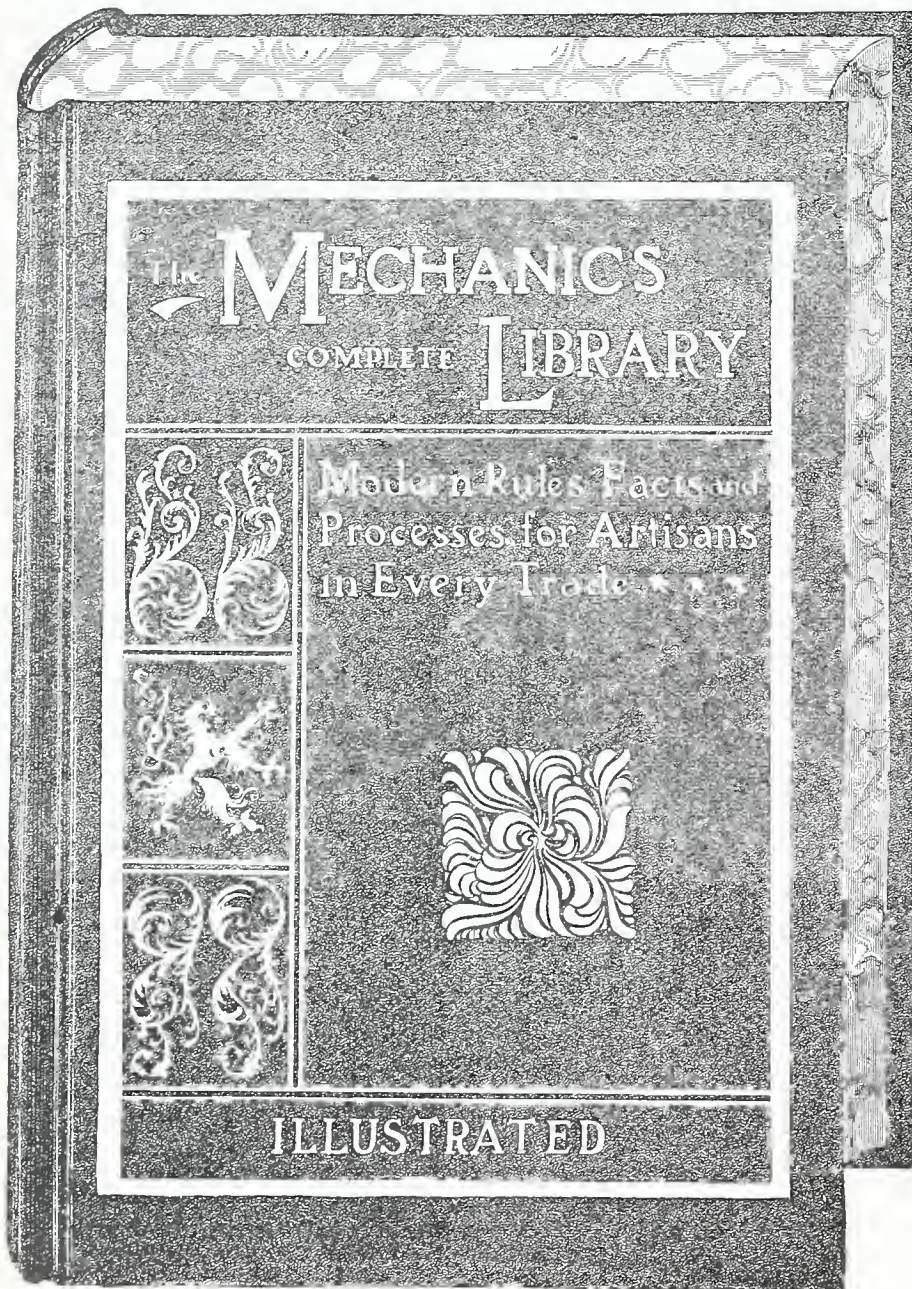
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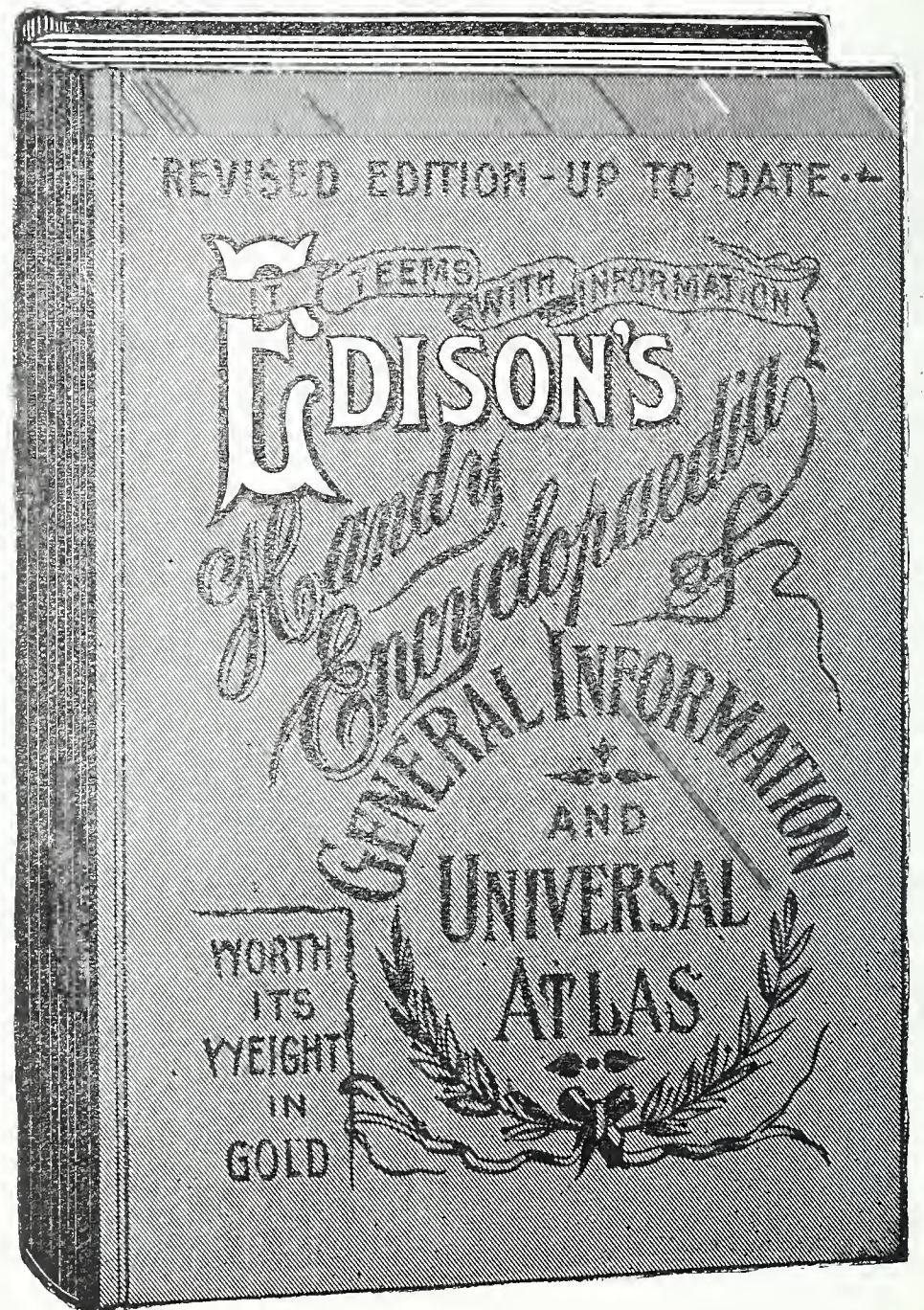
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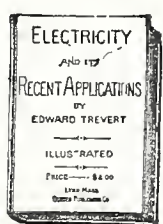
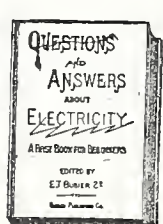
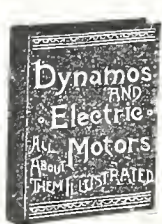
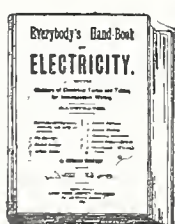
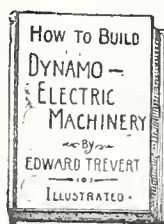
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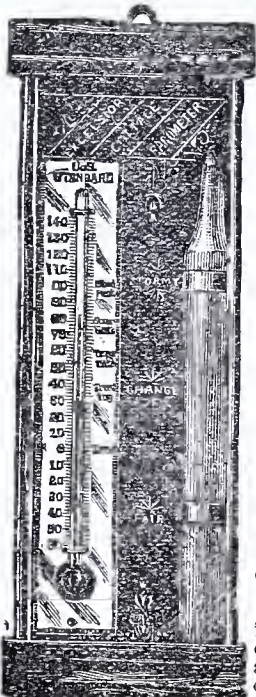
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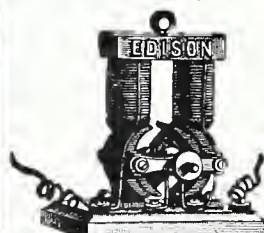
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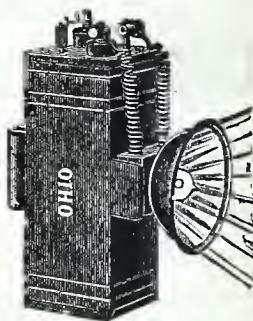
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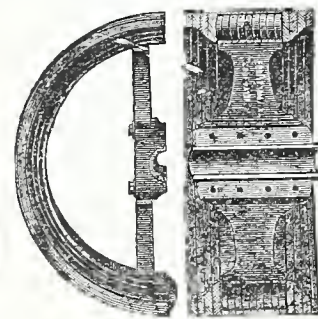
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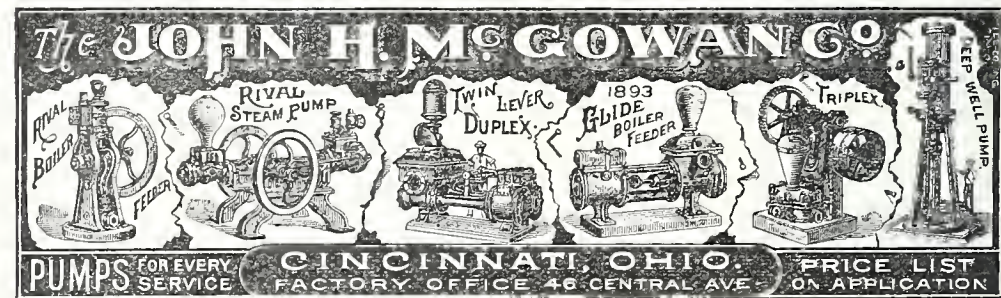
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The Horseless Phaeton.

The electric horseless vehicle may now be said to be a commercial success. The press exhibition of two types of these new motor carriages given on the 13th ult. at the works of the Pope Manufacturing Company in Hartford Conn., marks the beginning of the "horseless era" in this country. Not that other exhibitions of successful horseless carriages have not already been made in this country but the Pope creation is so much superior to others in the same line in appearance and character of detail that they may now be said to be leaders in this line of carriages. The carriages here illustrated were special orders and were built at a cost of about \$3,000, and can be operated for from 10 to 25 cents a day. The difference between the annual expend-

ing characteristics of these novel vehicles. They have a steel frame upon which the body of the wagon rests, the construction of which is made possible by the fact that the Pope Manufacturing Company operates the finest steel works in this country. Everything about the carriage is made on a bicycle basis and ball bearings are freely used throughout. The wheels are equipped with 3 inch Hartford single pneumatic tube tires whose wear on the experimental carriage has been most satisfactory. The illustrations herewith exhibit the main features of the mechanism of the storage battery electric carriage very clearly. One observes a high back phaeton the front axeltree of which is pinioned at the centre of the carriage so as to be easily and readily turned by means of the steering handle.

batteries 1.35 horse power is being exerted at the rim of the wheel. The battery capacity is 70 amperes an hour at a discharge rate of 25 amperes, which would mean that 25 amperes could be maintained for 2.3 hours which would propel the carriage 35 miles. The total weight of the carriage is 1900 pounds.

The Pope Manufacturing Company began its work in the motor-carriage field in January, 1895, and during the two years and a quarter that have elapsed since that date investigation and experiments have been going on, without regard to expense, to determine what is the best type of carriage and to devise and construct a vehicle which can be put before the public as the best horseless carriage now attainable.



TYPES OF ELECTRIC VEHICLES MADE BY THE POPE MANUFACTURING COMPANY.

iture on this basis of keeping two horses, which would be necessary to maintain the same service, certainly represents the interest on a much larger sum than the above price. How far will it go is one of the questions asked. The Pope carriage will cover about 35 miles and has a maximum speed of about 15 miles an hour and other speeds on level roads as follows: first, 3 miles an hour; second, 6 miles an hour; third 12 miles an hour. The object of the Pope Company has been to provide a vehicle that would cover the distances required of the average horse. Anyone can with a few minutes instruction operate one of these carriages. They are available in the most severe weather and while their radius of action is necessarily reduced 6 or 8 inches of snow or mud is no obvious obstacle. Comparative lightness with great strength are the strik-

The lever extends to a mechanism under the seat and is similar to the mechanism for increasing and decreasing the speed of the trolley car. There is a powerful brake which is applied to the rear wheels and operated by the foot, which will stop the carriage within a very short distance. One of the most ingenious features of this carriage is the balance gear which enables the two rear wheels to revolve independently of each other while turning a corner. There is no transmission of power by belts or chain gearing; the motor operates the axle directly. It is a two horse power Eddy motor, which in order to develop a speed of 12½ miles an hour on a smooth road consumes 18 amperes of current with a voltage of 80. This requires an output from the batteries of 1.93 horse power, which means that with 1.93 horse power going in from the

The sensation of smoothly gliding through the trackless streets of a city, without the aid of horses, is certainly a novel one. There seems to be no skill needed other than that required to guide the vehicle clear of other vehicles in a crowded street. The controlling of the speed and the steering is done in the most instinctive manner, and is readily learned, not only by the novice in motor carriages, but by those wholly unfamiliar with the rules of driving.

Inventors are just now paying a great deal of attention to motor-cycles of all kinds. One issue of the Gazette recently contained the patents for a marine velocipede, wings for aerial flight and a motor-driven sleigh.

A simple machine is now on the market for removing peas from the pod without bruising or crushing, automatically separating the shelled peas and pods.

The Inventive Age

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WASHINGTON, D. C., JUNE, 1897.

SPEAKING of prize-offering humbugs it is evident, according to reports received from inventors, that Washington has a firm that still believes implicitly in the "free and unlimited coinage" of both prizes and medals—for suckers—at a ratio commensurate with the gullibility of the inventor.

A RAILWAY hospital car is a new invention in Belgium. It is designed for the purpose of transporting invalids to health resorts and is in charge of experienced surgeons and nurses. The American consul at Ghent recommends it to the consideration of American railway managements.

THE most elaborate preparations are being made to faithfully reproduce the scenes and incidents attending the forthcoming Queen's Jubilee by means of the improved biograph. Within twenty-four hours after the great event views will be forwarded to America and we can all enjoy the jubilee.

WHEN difficulty is being experienced in securing ocean freight room on outgoing vessels because of continued increase in exports from the United States is it not reasonable to conclude that the dawn of prosperity is well along? The conditions are certainly improving and confidence is slowly but surely being restored.

AN interesting experiment is now going on between Albany and New York, consisting of the transmission of typewritten messages direct by the new Rogers printing telegraph machine. By this machine typewritten copy made at one end of the line is instantaneously reproduced at the other end in typewritten form.

OUR government gives the author of a book, song, or play 42 years protection, yet when the supreme court sustains an auxiliary telephone patent which prolongs the monopoly of the telephone to 31 years, people all over the United States rise up in furious indignation and cry "stop thief." The term of a patent is 17 years—a copyright 42 years. Will somebody tell us why an author is two and a half times better than an inventor?

A REWARD of \$250 was recently offered in Edinburgh for electric meters. Nine competed for the prize and were examined, but none considered of sufficient merit to warrant the award of the prize. It must have been a different kind of "board of awards" than that headed by Senator Stewart, assisted by Woodward, Moses, et al. of this city, for, according to reports, they never fail to make an "award"—in the interest of the patent firm they represent—as advertised. Prizes are not so cheap in Europe as in the United States, and they seem

to be cheaper and more numerous in Washington than in any other part of the United States.

Who are Patent Sharks?

The freedom of speech and the freedom of the press has been terribly abused in this country but just now the freedom of the mails is being imposed upon to such an alarming extent that a halt should be speedily called. Uncle Sam should go out of partnership with quacks, and humbugs and the conscienceless patent attorney belongs to that category as much as the "green goods" man or the lottery agent. The use of the mails was forbidden the prize-offering concern of Louisiana that gave back to its patrons 40 per cent of its gross receipts, but the patent-prize offering humbug, that gives back to its deluded victims nothing but rainbows, air-castles and meaningless medals, is allowed to thrive and extend its field even to the verge of the lottery fake.

The false stimulation of invention through the grossest kind of misrepresentation as to the state of the art in any or all lines and the obtaining of clients through false representations ought to be discouraged instead of favored by the government. The use of the mails to encourage poor inventors to take out patents on useless and worthless inventions—the holding out of prize offerings for "meritorious devices" alleged to be in demand, but which in reality have long ago been anticipated or are of no commercial value—is as wrong on the part of the government as the authorization of road agents and the teaching of pickpockets through a central correspondence school. A wholesome encouragement of the inventive genius is commendable but to encourage an inventor to apply for a patent on a useless device, or mulch fees from him for an application for a patent that an attorney who cares a straw for his professional honor and reputation would advise against, is a species of modern highway robbery just now reaching, in the case of several firms in the United States, quite formidable proportions.

It is to correct some of the abuses in the patent office and to remove some of the disgrace from the patent system that the bill now before congress is aimed at. It prohibits alleged patent attorneys from offering prizes and medals as a mere "inducement" to apply for a patent.

The honest patent attorney is one who gives his clients honest advice as to the state of the art; one who strives to obtain something more than a patent in name only; one who will not mislead the anxious and expectant inventor by purposely exaggerating the importance and value of his discovery or device. The shark is one who sends broadcast a list of "inventions wanted" that are not wanted—that have already been granted in every conceivable form—and who brazenly sends word to the inventor that his particular invention has "unusual merit" and a "board of awards" has selected it as worthy of a "special medal," when as a matter of fact medals are sent to all the suckers who bite at the prize bait.

The sincere, pains-taking patent solicitor is one whose clients of former years come back again when new patents are ready to be taken out and who glorify and sing the praises of the patent system. The shyster in patent law is one whose clients, with vanished hopes and bitter experience decry the patent laws and clamor for the destruction of that bulwark that has done more for civilization in a hundred years than is compassed in all the prior past.

The attorney with a reputation worth guarding is one, the failure of whose client to obtain a valid patent grieves him and is the exception rather than the rule; while the quack and fakir is one who files a hundred applications, gives out a hundred medals for "superior merit" and has a cash prize offering award semi-occasionally besides, but who seldom gets a valid patent allowed.

Just why it is that the great army of American inventors should be selected as a target for unscrupulous individuals more than any other class can be accounted for only from the fact that gov-

ernmental vigilance in this direction is more lax than in that of any of the other well known swindling schemes that utilize and exist only by the unrestricted use of the mails.

ONLY a few of the many of town-sites and embryotic manufacturing cites started during the boom period prior to the last administration, have weathered the storm of depression. Elizabethton, Tenn., the property of the co-operative town company, now the Watauga Land Company, is one of them. Although at one time its 2,500 shareholders allowed it to run close to the shoals of destruction, through the heroic action of the directors, comprising such men as ex-Secretary Carlisle, Senator Harris, Benjamin Butterworth, Senator Hansbrough, Judge McComas, C. P. Toncray and James T. DuBois, the affairs of the company have again been placed upon a sure and safe foundation and the attempts of ill-advised enemies to wreck the company and fatten on the spoils has been successfully thwarted. The little city has now passed through all the vicissitudes of boom days and resultant disappointments and the advent and location of numerous manufacturing enterprises places it in the lead of southern cities that have recovered from the paralysis of hard times and entered on the era of prosperity and good times.

READERS of the INVENTIVE AGE, particularly that large class of inventors in whose interest this magazine is especially concerned, will be pleased to learn that its field of usefulness is to be very greatly augmented by the co-operation of the Patent Law Association of Washington, D. C.,—an organization having for its primary object the elimination of humbugs, frauds and kindred parasites on inventors, and the dignifying of patent law practice. This organization is composed of some of the most reputable attorneys in Washington, whose standing before the patent office and whose professional and social integrity cannot be questioned. The INVENTIVE AGE takes pride in the fact that its course and standing has merited the endorsement of this organization. A glance at the sketches of some of the members of the association appearing in this issue—and to follow in subsequent issues—will give inventors, promoters, manufacturers and others an idea of the character of the men who believe in honest practices and proper regard for the interests of inventors.

THE National Association of Manufacturers, through its president, recently addressed a letter to President McKinley urging that changes in consular service shall be as few as possible and that removals be made because of incapacity only and that vacancies be filled as far as possible by promotions and transfers. This appeal, it is evident, is not made in the interest of the horde of place-hunters now in Washington seeking preferment. It is urged that just at the present time, when the possibilities of introducing American goods in foreign markets are greater than ever before, the impairment of the efficiency of our consular service by the substitution of untrained men for tried and experienced officials would mean great financial loss to those of our manufacturers who are interested in foreign trade.

"GREEN GOODS" men are not allowed the use of the mails to ply their nefarious business but their avocation is eminently respectable compared with the practices of the horde of patent frauds and patent selling sharks who prey upon the incredulous inventors. Inventors can avoid them only by dealing with strictly reliable people who care something for their good name and who still have that good old fashioned habit of discriminating between a dishonest and an honest dollar; whose opinion and judgment possess the stamp of honesty and sincerity.

It is hoped that congress will take action soon on the recommendation of the president and the state department for an appropriation to make a suitable exhibit at the coming world's fair in Paris in 1900. All the foreign governments lent their aid to the

great Chicago exposition, and considerations of courtesy aside from selfish interests demand that the United States be properly represented at this exposition. No nation on earth has more to show and no nation stands in line for greater benefits. Congress should appreciate the fact that every month's delay lessens the opportunity for a display commensurate with the greatness of our country and besides it is important that definite arrangements for space be made before the choice locations are taken by other nations, more appreciative of the prospective benefits.

As a result of an unconquerable and passionate infatuation for his former type-writer, and sudden termination of reciprocal regard by the young lady, a terrible street tragedy was enacted in one of the leading thoroughfares of Washington, on the 7th inst. Mr. Chas. E. Barber a well-known patent attorney and at one time an associate of Gen. Benj. F. Butler, attempted the life of Miss Dorothy E. Squires by shooting her in the neck and in the hand; and then, placing the revolver to his own head, ended his own earthly career. The young lady will recover. The event caused a great sensation in the capital city especially among the patent bar and patent office force.

THE indications point to the financial success of the Nashville exposition. No southern state ever made greater efforts to show to the world the resources, development and opportunities of that great region. The enterprise cost the projectors something over \$700,000 and about \$30,000 of this sum has already been returned to the bond holders. No little credit is due Mr. Herman Justi, chief of the bureau of publicity and promotion. He has proven the right man in the right place.

THE steam locomotive is doomed. It will soon disappear and be relegated to the grave-yard of "has-beens." On the 24th ult. electricity was substituted for steam on the line between New Britain and Hartford, Conn. It was an epoch in railroading and marks the beginning of the age when steam for motive power on railroads shall have been abandoned. The success of this experiment means the speedy equipment of other lines. The locomotive will follow the stage coach.

THE INVENTIVE AGE will shortly issue weekly instead of monthly and new features will be incorporated making the publication indispensable to inventors, promoters, manufacturers and patent attorneys and to all who are interested in new things and desire to keep abreast of the times in the inventive and industrial world. All who subscribe or make advertising contracts before August 1st will receive the benefit of the present monthly rates.

WALTER E. WOODBURY in Camera Notes, the official organ of the camera club of New York, is skeptic. He expresses a doubt regarding the genuineness of the so-called color photography process and proceeds to analyze some of the pictures exhibited in this country. He finds that pictures alleged to have been made from the same negative do not take the same shades of coloring and this fact is so curious as to raise a doubt as the phenomena being a chemical process.

THE passing of the first railway train over the new suspension bridge at Niagara Falls on the 20th ult., marked the completion of a structure requiring engineering skill of a peculiar and high order. The old bridge was built in 1855 and was one of the most famous bridges of the world in its day. The new bridge was constructed immediately on the site of the old one and traffic transferred from one structure to the other without interruption.

THE Brussels International Exposition was officially opened on May 8th, but not until the first of this month were the exhibits in anything like perfect arrangement. Among other novel features is a mono-rail electric system, which is attracting

much attention. The car is nearly 60 feet in length, is made entirely of steel and is said to be adapted to what is proposed to be the average speed of the system—100 to 130 miles an hour.

MR. GEO. H. BENJAMIN, a patent attorney of this city, takes the ground that the Berliner telephone patent, held by the U. S. supreme court recently to be valid, has, as a matter of fact expired; that it expired in 1884 through the expiration of the English patent of 1880 to Berliner. The Bell people on the other hand stoutly deny such an assumption and declare that the alleged prior patent does not "describe the same invention."

THE INVENTIVE AGE is pleased to announce that it has engaged the services of Mr. Lou R. Dennis, a well-known newspaper correspondent, advertising and business agent, who will represent the AGE among patent solicitors, inventors, promoters, manufacturers and others.

THE completion of the tunnel under the River Thames, at Blackwell, near London, marks a triumph in engineering skill. It was formally opened by the Prince of Wales on the 22d ult. The tunnel is 6,200 feet long—the largest sub-aqueous tunnel in the world.

Information for Patent Sharks.

Every patent shark and fraudulent patent selling agency in the country obtains a copy of the Official Gazette of the United States Patent Office as soon as it is issued each week. In this way the addresses of the inventors of the country are obtained. The inventor is the special prey of the patent shark; and he forthwith mails him all manner of circular letters and tempting propositions. It is a contest of frauds and the most ingenious and plausible rascal catches the sucker. THE INVENTIVE AGE has been warning inventors of these pitfalls for years, but there seems to be but one practical school for the poor inventor and that is the school of experience. This is often expensive but decidedly effectual.

Mr. Ernest Lawrence of Malone, N. Y., proposes a little legislation on this question. He would deprive the sharks of the addresses of inventors. Such information he would have kept in the secret archives of the patent office. To that end he urges the passage of a bill providing as follows:

"That from and after the passage of this Act, and for the purpose of preventing the nefarious mailing business of swindling patent attorneys, fake advertising agents, false promoting concerns, fraudulent patent selling companies, etc., the Official Gazette shall publish only the names of the patentees and the states in which they reside, entirely omitting their post-office address. Matters at the patent office shall be so arranged that addresses of patentees can only be ascertained by first purchasing copies of the drawing and specifications of the patents at the regular price of 5 cents per copy."

Fish That Spins Silk.

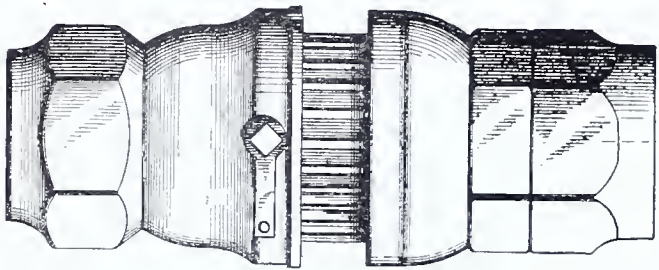
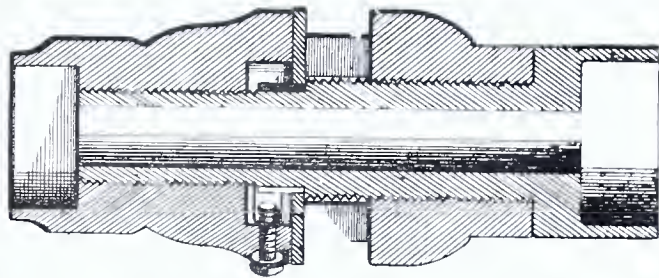
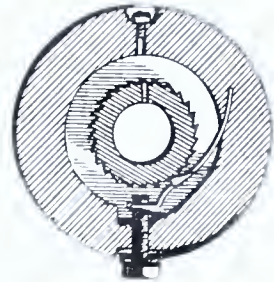
A queer little shell-fish, known as the "pinna," lives in the Mediterranean, and has the curious power of spinning a viscid silk, which is made in Sicily into a fabric. This silk is spun by the shell-fish, in the first place, for the purpose of attaching itself to the rocks. It is able to guide the delicate filaments to the proper place, and there glue them fast, and if they are cut away it can reproduce them. The material, when gathered—which is done at low tide—is washed in soap and water, dried, straightened, and curried, one pound of the coarse filament yielding about three ounces of the fine thread, which, when spun, is of a lovely burnished, golden-brown color.—*American Silk Journal*.

The spring meeting of the American Society of Mechanical Engineers was held at Hartford, Conn., May 25-28, and was largely attended, about 500 being present. The business meetings were held at Unity Hall and the convention headquarters were at the Allyn House. A number of papers on mechanical subjects were presented.

A prize of about \$250, the competition for which is open to all nationalities, has been offered by the Reale Institute Lombardo (Italy) "for experiments elucidating the Maxwell electromagnetic theory."

Vehicle Hub.

The patented invention of John Calvin Chilcote and Robert I. Bigley, citizens of Shy Beaver, Pa., is one that should recommend itself to manufacturers of vehicles and all who use them. The patent relates to a hub composed of a number of sections, which can be taken apart for removing and inserting spokes. In connection with a detachable hub section there is a box provided with an annular ratchet, a pawl, carried on the section, screw for locking the pawl, and device for locking the screw. After the spokes are inserted it is impossible for



them to come out; and if becoming loosened from shrinkage, they can be conveniently tightened. The device is self-oiling. The practical utility of this invention has been demonstrated by the inventors, whose work offers an opportunity to manufacturers and others who may desire to engage with them for making money.

The cut presented herewith illustrates the novel and useful invention that ought to meet with popular approval. The inventors have given the hubs a thorough trial and can guarantee that they work to perfection. Further information can be had by addressing Messrs. Chilcote & Bigley, Shy Beaver, Pa.

Books and Magazines.

The revised edition of "The Mechanical Arts Simplified," compiled and arranged by D. B. Dixon, is the most complete and valuable instructor for shop and office now in print. It is up to date in all matters and contains an appendix covering electrical matters and an exhaustive treatise on ice making, etc. It is a book of 500 pages and a most useful reference book for the use of architects, architectural iron workers, builders, blacksmiths, bookkeepers, boiler makers, contractors; civil, mechanical, hydraulic, mining, stationary, marine and locomotive engineers; foremen of machine shops, firemen, master mechanics of railroads, master car builders, machine shop proprietors, machinery jobbers, machinery salesmen, machinists, pattern makers, railway superintendents, railway supply agents, roadmasters, superintendents of factories, and business men generally. It is so complete that it is doubtful if any problem in engineering and mechanics can arise that has not been anticipated and solved in this work, which is also profusely illustrated. A student of this book can solve all difficulties. Handsomely and solidly bound in silk cloth, gold stamp, \$2.50. For sale everywhere, or sent postpaid on receipt of price by the publishers. Laird & Lee, 263 Wabash Avenue, Chicago.

A dynamo of 2,500 horse-power—the largest in the world—is about to be erected in Manchester, England.

A process for rendering celluloid non-combustible has been discovered.

PATENT LAW ASSOCIATION.

Pen Sketches of Some of Its Members.

In the May issue of THE INVENTIVE AGE was published an outline sketch of The Patent Law Association of Washington showing its objects and some of the results already accomplished by it.

In pursuance of the plan of making the INVENTIVE AGE a publication of especial value and interest to the members of the patent law profession and to all who may be interested in inventions and patents, in this issue pen sketches, and portraits of some of the members of the association are given and in subsequent numbers other sketches will be published—they having been crowded out of this issue for want of space.

Believing that this organization of the most reputable patent lawyers will accomplish much good and is greatly needed, the INVENTIVE AGE proposes to co-operate with it in any way that a publication of this character may adopt, and freely offers the columns of the paper for such purposes.

The INVENTIVE AGE is opposed to charlatanism in any form but especially to that form which under the guise of obtaining valuable franchises, misleads, imposes upon or defrauds inventors to whom more than to any other members of society the world owes its progress and prosperity.

This paper hopes soon to be able to congratulate the Patent Law Association of Washington on its efforts to secure the adoption of new rules in the patent office which will serve to check the unprofessional and dishonest practices which have grown to such an enormous extent in the last few years.

General Ellis Spear.

General Ellis Spear is an old time and popular resident of the capital city, having come to Washington after mustering out of the army in 1865. He entered the government service in the patent office and after many years of continuous service resigned the office of assistant commissioner of patents in 1876 to become a member of the firm of Hill, Ellsworth & Spear but was induced to again return to the patent office as Commissioner of Patents



which position he filled with marked success until he resigned in 1878. Since that time he has devoted himself to the practice of law giving special attention to patent cases.

Gen. Spear is a director of the Washington board of trade and has largely to do with District affairs, being connected with several important fiduciary concerns.

The General has a high reputation among the leading patent attorneys and his opinions on technical matters are largely sought after and generally decisive. There are few more genial gentlemen and none more thoroughly conversant with the "ins and outs" of patent law and department

rulings than Gen. Spear whose high standing as a citizen, gallantry as a soldier and ability as a patent lawyer are unquestioned.

Gen. Spear numbers among his numerous clients some of the largest and most prominent concerns in Europe as well as in America and has gained his enviable reputation by his close attention and devotion to the interest of his patrons. The General comes from a long line of sturdy New England ancestors and has inherited their rugged integrity, and while making no display he at once convinces those with whom he comes in contact that his line of expressed thought is always based upon mature deliberation and carries conviction without flavor of dogmatism. There are few men who can so tersely express themselves and none more modestly yet firmly carry conviction.

It is these well-known and prominent traits that give General Spear such a high standing in the profession and augments his clientage from among the most successful patentees who have been fortunate enough to entrust their interests to his faithful and efficient care.

Frederick Benjamin.

Mr. Frederick Benjamin began his connection with the patent business twenty-one years ago as office boy in the Washington office of Messrs. Howson & Son, of Philadelphia, who were then leaders



in the profession. He became an expert stenographer and was employed in taking testimony in interference causes. He graduated in law in 1881, went to Chicago and became a member of the firm of Gillson & Benjamin, took charge of the Washington office of the firm in 1886, and since 1889 has practiced his profession in this city, making a specialty of examinations as to the title and validity of patents. For the past three years in addition to his regular practice he has had charge of the patent business of a corporation organized to prosecute applications for patents. Mr. Benjamin was active in the organization of the Patent Law Association of Washington and hopes to see it become a national organization, with members in every important city, devoted to the cultivation of closer relations between practitioners making a specialty of patent law, to raising the standard of professional practice, and to securing much needed changes in the patent laws.

Wm. C. McIntire.

Wm. C. McIntire, attorney and mechanical expert, 614 F street, Washington, D. C., began the study of his profession with his brother J. N. McIntire, (who now resides in New York City), at Washington in the year 1856; but at the breaking out of the war cast his fortune with the South, and was fortunate enough to return to his native city in 1865, when he resumed his practice and continued it in this city until January, 1868, when he again became associated with his brother and located at New York City. He returned to Washington, however, within a year and begun business for himself, representing the Washington business of the celebrated patent lawyer, Chas. M. Keller, of New York, and subsequently the firm of Keller & Blake until the death of both Mr. Keller and Mr. Blake. During this period Mr. McIntire was professionally employed in most of the leading applications for

extensions of patents. He comes from a family of patent people, most of his immediate male relatives both on his father's and mother's side having been prominent as lawyers or mechanical experts. During his professional career he has been identified with very many of the most celebrated patent liti-



gations and is still actively engaged and numbers among his clientage many of the most celebrated inventors of the age.

Wm. D. Baldwin.

William D. Baldwin, is the grandson of Henry Baldwin, formerly associate justice of the supreme court of the United States, and son of Henry Baldwin, a lawyer and for many years an examiner in the United States Patent Office.

Mr. Baldwin was born in Franklin, Tenn., Sept. 30, 1834. He came to Washington with his parents in 1851. He was educated at the best private schools of the day in Tennessee and in Washington City. After a short experience in commercial life in New York City and in Washington, his hereditary instincts led him to become a lawyer. In 1856 he entered the office of Peter H. Watson, then the leading patent attorney of the District, where he remained until 1859, when he became a patent solicitor on his own account. He was admitted to the bar of the supreme court of the District of Columbia in 1863, and of the supreme court of the United States in 1869. In 1861 Mr. Baldwin served for a short time as a private in the Union Army, from which he was honorably discharged at the expiration of his service.

His business has been largely with prominent manufacturing concerns, and he has been actively engaged in much of the important patent litigation of the country, representing for years many of the largest harvesting manufacturers of the country. He was also interested largely in the early sewing machine patent litigation. He became actively engaged in the telephone litigation from the start,



devoting a large portion of his time to it for many years as one of the representatives of the Western Union Telegraph Company, in the contest with the Bell Telephone Company. In 1863 he engaged in business with his father, the connection being terminated by the death of the latter in 1868. In 1874 he organized the firm of Baldwin, Hopkins & Peyton, which lasted until 1888. Mr. Hopkins has retired and Mr. Peyton is dead. In 1880 Mr. Baldwin opened a New York office in connection with Frank L. Pope, one of the most celebrated electrical experts of that day, for special attention to electrical matters. In 1888 the present firm of Baldwin, Davidson & Wight was organized.

It will thus be seen that Mr. Baldwin is one of the

seniors of the profession, there being few practitioners of the same length of service. In his early days the patent agents, as solicitors were then called, were mostly not lawyers, and he owes much of his success to his legal training. He was co-editor with Mr. Woodbury Lowery in Baldwin & Lowery's Patent Digest, being volume 25 of Myers' Federal Decisions, published in 1886, and also the author of a dissertation on patents, commenced at about that period and published periodically in the Washington Patentee, but never completed, owing to his professional engagements, and the publication of Robinson's exhaustive treatise on patents, which supplied the need for such a work.

Mr. Baldwin has never held public office, but has spent much time and effort in endeavoring to raise the standard of the profession and to improve the practice of the patent office and assimilate it to that of the courts. He is still in active practice and the estimation in which is held is evidenced by his present position in the profession.

For the past ten years most of Mr. Baldwin's time has been devoted to litigation in the courts and in the patent office. Mr. Baldwin has been acquainted with nearly all the commissioners and patent office officials from Edmund Burke down, covering a period of more than forty-five years, and has likewise been familiar, not only with the patent office practice, but with the history of most of the celebrated applications, interferences, extensions and litigated cases of that period. His reminiscences, if they could be put in book form, would doubtless be of great interest to the profession, and he sometimes regrets that the arduous nature of his professional duties has prevented his preserving or writing out his personal experiences in that line.

William G. Henderson,

William G. Henderson was born in Washington in 1852 and received his education in the private schools of this city. He entered the patent office in 1868 and after serving in the several divisions of the office, including the examining corps, resigned in



1874 to enter upon the practice of the law, having graduated from the Columbian Law School in June of that year. After devoting several years to the general practice of law in this city he adopted patent law as his specialty and since then has given his exclusive attention to that branch of the law, and trade-mark causes, his practice including litigation in the courts as well as prosecution of cases before the patent office.

In 1880 he was admitted to practice before the United States supreme court, and has had occasion to appear before that court as well as before the federal courts in different circuits in various patent and trade-mark causes.

Wm. H. Doolittle.

Wm. H. Doolittle, 930 F Street, was born in Akron, Ohio, April 15, 1844. While a boy his family removed to Pennsylvania. He gained a noble record as a member of the 141st Pennsylvania Volunteers, Co. F, from 1862 to 1863. He was wounded in the battle of Chancellorsville in 1863, and discharged in 1864; and from 1864 to 1868 he was a clerk in the war department. He graduated at the Columbian University Law School in 1867, and was admitted to the bar in the same year. In 1868 he removed to St. Paul, Minn., and was admitted to practice before the supreme court of that state. In 1870 he was again appointed to office in Washington, serving both in the interior and treasury departments. In 1873 he was made an examiner in the patent office as the result of a competitive examination. After several promotions he was appointed in 1876 by President Grant as assistant commissioner of patents. After seven years laborious service in the patent office he

resigned, and in 1880 entered into active practice as a patent lawyer. He was admitted to the bar of the United States supreme court in 1883. Mr. Doolittle has thus resided in Washington thirty-three years. He is an attorney of wide experience, and has an extensive practice in the United States courts and before the patent office in the branches of the law relating to American and foreign patents, trade-marks and copyrights. He has, as a partner, his son, Wm. G. Doolittle, who has charge of a branch office in the Bakewell Building, Pittsburg, Pa. It



is but natural that Mr. Doolittle should be in a position to give the highest service, having for so many years been intimately allied with the patent office, and hence in touch with every detail of the department, and with a knowledge of every requirement that is necessary and every step to be taken in order to obtain a patent as broad as the inventor's rights, and to maintain it before the courts. In all of his professional duties Mr. Doolittle has proven himself a capable and trustworthy practitioner, and he is regarded as one of the most reliable men in his calling.

Hervey S. Knight.

Hervey S. Knight is a native of the District of Columbia. He is the Washington member of the firm of Knight Bros., which was established in Cincinnati in 1843, and in Washington in 1856. Mr. Knight's connection with the patent business commenced about seventeen years ago. He is a graduate of Georgetown University School of Law, and a member of the bar, and is engaged in general patent practice before the courts and in the patent office.

He enjoys the reputation of having been successful and thoroughly reliable, and the firm is one of the best known in the country.

Charles L. Sturtevant.

Charles Lyon Sturtevant, one of the charter members of the Patent Law Association, was born the 12th of March, 1867 at Washington, D. C., his parents being both natives of Springfield, Mass. His father, Albert L. Sturtevant, was for many years, chief of the stationery division of the treasury department.

He went through the public schools of Washing-



ton, graduating from the high school in the class of '81. He entered Columbian University, and graduated in 1885, receiving the degree of Bachelor of Science. He received the degree of Master of Laws from Columbian University in June 1889 and was admitted to the bar the same month. He

started in the patent profession in 1885 in the office of Hon. Ellis Spear and after serving three years in that office and three years in the office of Frankland Jannus, entered on the practice of the profession on his own account in April 1891.

Starting in a small way he has, by most careful personal attention to the interests of his clients, all work in his office being done under his personal supervision—built up a lucrative practice. This has been done solely by hard, conscientious work, he having never advertised, and not having had the prestige supposed to come from the fact of being employed in the patent office. His present large clientage has all come to him through recommendations of others.

As showing the character of his business, it is only necessary to mention the fact that among his clients are such well known firms as E. & T. Fairbanks & Company, scale manufacturers of St. Johnsbury, Vt.; the Union Special Sewing Machine Company of Chicago, Ill.; Crane & Company, and W. M. Crane, of Dalton, Mass.

By reason also of the special training he has had in electrical matters, he is frequently called upon by the most important electric companies to represent them in matters at Washington and in addition to this, he is representative of some of the most prominent patent law firms of New York, Philadelphia and Boston.

He is a member of the American Institute of Electrical Engineers; and also belongs to B. B. French Lodge F. A. A. M.

Mr. Sturtevant is a nephew of the late Hon. E. W. Kinsley, for many years railroad commissioner for Massachusetts.

Walter F. Rogers.

Walter F. Rogers is a native of Delaware but a legal resident of Pennsylvania. His father was Dr. Thomas Cooper Rogers, a well-known physician and his mother, Rachel Vreeland Edwards, the daughter of Rev. John Edwards. He is thus related to many prominent families in Delaware, Pennsyl-



vania, Maryland, Ohio and Nebraska.

He was educated at Wyoming College and at the First Normal School, of Pennsylvania, taught school four years, was for a short time connected with a manufacturing concern and, in July 1881, at the age of 20, entered the examining corps of the United States patent office as the result of competitive examination.

As examiner he had experience in such classes as seeders and planters, harrows, plows, trees, plants and flowers, refrigeration, air and gas pumps, wind wheels, driers, alcohol, mineral oils, oils, fats and glue, gas, hides, skins and leather, fluid pressure regulators, safes, locks and latches, builders' hardware, farriery, metal-working tools, aerial navigation, ventilation, educational appliances, and other classes including nearly eleven hundred sub-classes.

He was promoted through the several grades to first assistant examiner and was in the aggregate in charge of a division for several years. Though a republican he was appointed law clerk of the United States patent office by a democratic administration.

He served for three years as law clerk, a post that brought him into touch with every class of invention, and every phase of practice in the office, and the duties of which he discharged with conspicuous ability.

He resigned this office to enter the practice of patent law and formed a special partnership with the well-known firm of Thayer & Rankin, of this city, who act with him as general counsel in the consideration of those purely legal matters that are constantly arising in connection with patent causes.

He has for seven years past been lecturer on patent law and practice in the National University

Law School, of Washington, and his lectures have been a marked success and a striking feature in the curriculum. The faculty includes a number of celebrated jurists and well-known lawyers.

He has for the past several years written the treatise on "Patent Office Practice" in "The American Corporation Legal Manual," and is the author of other works, notably a review of the decision of the Supreme Court of the United States in *Risdon vs. Medart*, published in the *American Law Review*.

This article was widely read and discussed, following so promptly upon a decision that excited a storm of adverse comment. It analyzes the decision exhaustively, carefully differentiates the principle with which the court was concerned in that case and temperately but boldly states the views of the writer. It is an able, thoughtful and vigorous protest against an inaccurate statement of a fundamental principle in patent law, and aims at the apparent purpose of the court to carry out a general theory against a class of claims, without any real support from the authorities invoked.

The article exhibits the breadth and solidity of Mr. Rogers' attainments.

It has been no surprise to his wide circle of acquaintances that his ability has been quickly recognized by a large clientage.

He graduated with honor from the law school of the National University and has been admitted to the bar of all the courts of this District and of the supreme court of the United States.

As a member of the Patent Law Association he was especially active in promoting the passage of the recent patent legislation and at the recent banquet of that Association made one of the most effective speeches of that memorable occasion.

Col. T. H. Alexander.

The subject of this sketch is a native of Woodford county, Kentucky—that beautiful blue grass region, whose fame is world-wide on account of its



handsome women, magnificent horses, and splendid whiskey. (The Col. however, claims only to admire and to be a competent judge of the two former—none whatever of the latter.) He comes from a long line of noble and distinguished Scotch and French ancestry—dating back to the 12th century—the records of his family from that period to the present generation being in his possession. His grandfather was Lord Alexander of the house of Sterling—and his uncle Sir William Alexander received the appointment of Lord Chief Baron of the Exchequer of England, thus indicating the high esteem in which his legal ability was held by his sovereign. Col. Alexander early determined upon making the patent practice his specialty, and after completing his academic education, came to Washington in 1856, when about nineteen years of age, with this object in view. After studying law he was admitted to the bar of this district, and subsequently to that of the supreme court of the United States. In 1857 he commenced his career as a solicitor of patents, and may rightly be regarded as one of the deans of his profession in this line. He has always enjoyed the respect and full confidence of the community, no less than that of his legal brethren, and extensive clientage, whose interests are always safe in his hands. To Col. Alexander belongs the distinction of having filed in the patent office the greatest number of applications, in one day, and for one inventor that have ever been filed, in the whole century of that institution, i. e. seventy-three. For this prolific inventor, is kept a special record, and within the past few years, the entire number of his applications reaches about five hundred, Col. Alexander's personal attention is now however more devoted to patent litigation, and he is retained in some of the most important cases of infringements that are constantly arising. The firm of Alexander &

Dowell stands as a synonym for honest dealing and professional service of the very best.

Joseph R. Edson.

Among the members of the legal fraternity in Washington who have achieved an enviable reputation for a faithful, honest and conscientious discharge of the duties and trusts committed to their care, in the practice of patent law, may be mentioned the subject of this sketch, Mr. Joseph R.



Edson, of the well-known firm of patent attorneys and solicitors, Messrs. Edson Bros., of 927 F street, N. W.

Mr. Edson, one of the originators of the Patent Law Association, of Washington, D. C., was born in Jefferson, Ashtabula Co., Ohio, August 17th, 1847.

Having made several unsuccessful attempts to enlist in the volunteer service of his native state, but failing on account of his age, he came to this city in June of 1863 and shortly thereafter became a student in the Columbian University of this city. In 1866 he entered the law and patent offices of the Hon. D. P. Holloway who had just resigned the office of commissioner of patents, which he held during the administration of President Lincoln. By reference to the official records of the patent office it will be seen that about eight-ninths of all the U. S. letters patent for inventions have been issued during the time that Mr. Edson has been in practice as an attorney in patent cases.

As an aid to him in his profession he has made many special investigations in different branches of the industrial arts and in the winter of 1876 and 1877 he attended a course of medical lectures in the Georgetown College of this city. He is a member of several social and scientific societies in this city.

Since the organization of the firm of Edson Bros., Mr. Joseph R. Edson has had personal charge of the patent branch of their business, and having made a specialty of patent and corporation law and of practice relating to trade-mark cases, his many clients have the assurance that their interests are ever well guarded and perfectly safe in his hands.

The official records show that Mr. Edson has filled some of the largest orders that have ever been given for foreign patents; he having filed thirty-three applications for patents in as many countries at one time, and he is now under an engagement to secure patents in fifty-six countries for the same invention.

Mr. Edson is a thorough master of detail, so necessary in a technical business of this kind, and for the safe storage of drawings, letters, etc., of inventions, he has provided a large vault, and can produce any paper that he has ever had in any case, if it has not been returned to the person from whom received. These papers thus preserved, have, in several instances, been of great assistance to some of his clients in the course of legal proceedings.

John Joy Edson, brother of the subject of this sketch, is the President of the Washington Loan and Trust Co., one of the largest banking concerns in the city, capital \$1,000,000, located in its own magnificent granite building opposite the patent office, and among the other large corporations in which he is interested, either as an officer or director, may be mentioned The Equitable C. B. Association, Capital \$1,400,000; The Lincoln Fire Ins. Co.; The Columbia National Bank; The Corcoran Fire Insurance Co., and other financial institutions. He is also president of the Board of Directors of the Homœopathic Hospital, and is connected with many other charitable associations. During President Harrison's administration he was tendered the appointment of commissioner of the District of Columbia, but on account of pressing private business he declined the appointment.

Mr. Edson will shortly go abroad in the interest of some of their clients, on patent matters, and

while there will renew the acquaintance of many of the leading patent attorneys and solicitors which he made on a former visit.

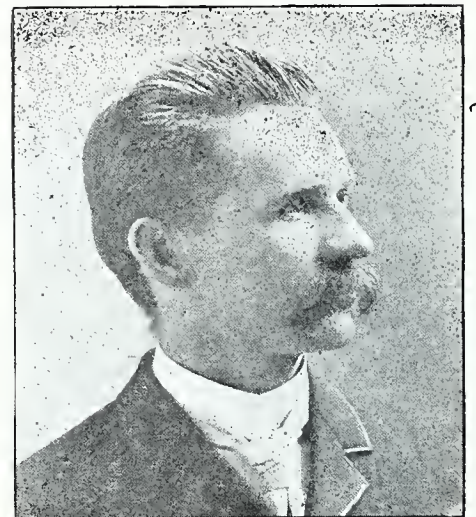
Among the great number of letters which Mr. Edson has on file in his office, from men in political life as well as from his clients, which speak of his integrity honesty, ability and trustworthiness, reference may be made to letters from President McKinley the late Hon. James A. Garfield and to those of ex-commissioners of patents, D. P. Holloway, T. C. Theaker, J. M. Thacher, Ellis Spear and others.

Mr. Edson was married in 1877 to Miss Marion Goodall a daughter of John K. Goodall of London, England, and has a family of three charming daughters, the eldest of whom is now an upper classman at Vassar College. Mrs. Edson has exhausted the talents of the best masters on the piano in the city and is considered by her host of intimate friends in Washington as one of the leading amateur performers on the piano in the city.

Julian C. Dowell.

No member of the Washington bar is held in higher esteem by the members of the profession and others than Mr. Julian C. Dowell, who was born near Raleigh, N. C., in 1856. His parents were among the leading active educators of that state and took pride in giving their children the advantage their position and experience enabled them to confer in the way of careful training and a thorough education.

Having finished his course at the academy at the age of 17, Mr. Dowell came to Washington to seek employment which he found and was soon thereafter appointed to a position in the United States patent office. Whatever assignment he was given the duties were discharged with industry and fidelity and very soon the onerous details of the business



of the office were fully mastered.

Without "political pull" Mr. Dowell won by merit and determined effort the promotions that successively came to him from time to time. Being thorough and conscientious in all his work, Mr. Dowell soon won the admiration of his superiors in office who advanced him from one position to another until he was finally made Examiner of Interferences, a judicial position of great importance and responsibility; and while in this office he studied law and was admitted to the bar in 1881.

When the celebrated Drawbaugh telephone case was before the department Mr. Dowell was selected by the government to establish the fact of public use of the telephone and won high encomium for his research, fairness and logical determinations, which have been cited in a great many subsequent cases.

When Judge Hall resigned as commissioner of patents, he and the present Commissioner of Patents, Hon. Benj. Butterworth, who at that time had just retired from congress to resume the practice of his profession, formed a co-partnership and in seeking for a young man to be associated with them who was thoroughly qualified and equipped by experience as an expert in patent matters and who possessed integrity, ability and industry, Mr. Julian C. Dowell was recommended by the commissioner of patents and was duly invited to become a member of the firm under the style of Butterworth, Hall & Dowell, which offer he accepted, resigning his position in the patent office to that end. On the death of Judge Hall the partnership was continued under the present firm name of Butterworth & Dowell.

Mr. Dowell being a thorough expert in the technique of patent practice has had complete charge of the patent department of the firm, and the interest of their clients are always under his personal supervision. He is painstaking in every sense and has always placed the interest of his clients paramount to his own, and it is this method of conducting a

patent law business that has secured for Mr. Dowell's firm one of the largest clientages in the Union.

Mr. Dowell was happily married in 1876 to Miss Cynthia E. Noyes, and of the four children—two boys and two girls—the elder son is now in his second year at Yale.

As a consistent member of the church Mr. Dowell's influence has always been arrayed on the side of morality and practical charity, his religion being of the kind that finds expression in his good works.

Mr. Dowell is a republican with broad and liberal ideas, a clear thinker and good speaker and deserves the success that has come to him by an honest, faithful, and conscientious discharge of the duties and trusts imposed in him by his many clients all over the United States, to whom he has every confidence in referring, priding himself on the thorough master of the details of his profession and his devotion to the interests of those who have entrusted their cases to his watchful care.

Ernest Wilkinson.

Ernest Wilkinson was born in Louisiana, in 1859, was appointed to the naval academy from Louisiana as a cadet midshipman, and graduated from that institution in 1880. After graduation he made a cruise in the Arctic and another around the world. While in the navy he was also detailed for four years on the scientific staff of the Smithsonian Institution, and as instructor in the departments of physics and chemistry and of English studies and law at the United States Naval Academy. He was promoted to midshipman from the grade of cadet-midshipman, and from midshipman to ensign, which latter position he resigned to enter the law office of the eminent patent lawyer Charles S. Whitman, lately deceased.

He was admitted to the bar, and in 1890 was taken into partnership by Charles S. Whitman under the firm name of Whitman & Wilkinson. Recently Mr. Wilkinson invited Assistant Commissioner of Patents Samuel T. Fisher to resign and become a partner in the firm, which offer was accepted and the present firm is Wilkinson & Fisher.

Mr. Wilkinson, during his service in the navy,



was always a student in scientific matters, and he entered the practice of patent law with a mind well equipped to handle the various scientific and technical problems that almost daily confront a patent lawyer.

His inherent executive ability, supplemented by his naval training, has enabled him to build up a large and growing practice. Although one of the younger members of the patent fraternity, his education, ability and energy have already placed him in the front rank of the profession.

Mr. Wilkinson's family has been noted in Louisiana for the past four generations. General James Wilkinson, his great-grandfather, then commander in chief of the U. S. Army, was appointed one of the commissioners to receive Louisiana from the French, while his brothers are all distinguished in public life, one having represented one of the New Orleans districts in congress for several terms and is now collector of the port at that city. Another is on the board of general appraisers in New York, a third is quarantine physician at New Orleans and a fourth was district attorney for eight years in the district adjoining New Orleans.

Mr. Wilkinson is a member of the Metropolitan and Army and Navy Clubs in this city, is a member of B. B. French Lodge F. A. A. M., and a foreign member of the British Chartered Institute of Patent Agents; also member of both of the patriotic societies of the Sons of the Revolution and of the Sons of the American Revolution.

Frank L. Dyer.

Frank L. Dyer, of Washington, D. C., was born in this city and has lived here continuously. He

attended the public schools and is a graduate of the Columbian University and of the Columbian Law School. In 1886 he entered the office of his father, the late George W. Dyer, a well known practitioner, and upon his death in 1889, took charge of the business, which has been carried on since then. He was admitted to practice in 1892.

In the practice of his profession he has made a specialty of chemical and electrical inventions. He is the Washington representative of Thomas A. Edison, his brother, Mr. Richard N. Dyer, of New York City being Mr. Edison's chief counsel. He is also the attorney in patent matters for John E. Searles, Treasurer of the American Sugar Refining Co.; for the American Steel Barge Co.; the originators of the "whale-back" vessels, and other important interests.

Jesse Hadley Whitaker.

The subject of this sketch was born December 5, 1842 in the town of Stratford, Fulton County, N. Y.,



and was named after his maternal grandfather. His early life was spent upon a farm and this rugged outdoor life no doubt, contributed to the physical strength and endurance which is one of his characteristics.

He was educated in the common schools of his native state and at Middlebury Academy at Wyoming, N. Y. He taught in the public schools of the state and adjoining counties of Pennsylvania for six years beginning his first school before he was seventeen years of age.

Mr. Whitaker came to Washington in the last days of 1864 and during the following year was connected with the New York State Agency located here to look after the interests of the soldiers from that state. Upon the closing of this agency consequent on the disbanding of the national armies, he entered departmental service, during which he studied law at the Columbian University Law School, from which he graduated in 1869 and was admitted to the bar in this District. He was a member and president of the secret society, The Justinian Fraternity, at that time connected with the law school. This society no longer exists but members of the old organization can be found among the leaders of the District bar and of the profession throughout the states of the Union. At that time there was no moot court connected with the college. Through Mr. Whitaker's endeavors, a moot court was established in the Justinian society, the plan upon which it was organized being practically his own.

After his admission to the bar here, he went to New York City and entered the office of Stewart, Ritch & Woodford. In the summer of 1870 he was taken with a serious illness which threatened his life and caused him to leave New York City. Returning to Washington he entered the money order office of the post-office department, where he served four years, being again driven from active life by failing health.

In December 1877, he entered the U. S. patent office, and upon competitive examination advanced rapidly until in November 1881 he was appointed Primary Examiner, which position he held for five years or until June 1, 1886 when he resigned and formed a partnership with his brother-in-law Mr. George A. Prevost, establishing the well-known firm of Whitaker & Prevost of this city, which has met with deserved success. He was, about this time, admitted to practice in the supreme court of the United States.

Mr. Whitaker is of a analytical and logical turn of mind and is very correct in his conclusions upon patent investigations and matters of law submitted to him. He had the reputation while in the patent

office of being one of the best readers of drawings in the office.

Mr. Whitaker has been active in the organization of the Patent Law Association of this city, and it was largely owing to his energy and perseverance that the recent act of congress relating to patents, was put in the desirable form in which it passed.

Mr. Whitaker is of earnest and sincere character, fearless and outspoken in condemnation of everything which is, in his opinion, wrong and equally frank in his advocacy of what he believes is right. While devoting himself to his profession, he is also a man of great literary taste and of wide reading. He is possessed of one of the largest private libraries in the city and is well known in literary circles. Literature is, as he says, his fad.

Arthur E. Dowell.

Mr. Arthur Edward Dowell, junior member of the well-known firm of Alexander & Dowell, of 607 Seventh street N. W., opposite U. S. patent office, has risen very rapidly in his chosen profession. Like many well-known prominent men, his early surroundings were humble—a small cottage on a farm near Raleigh, N. C. He emigrated at a very early age to Virginia and was educated at public and private schools in Loudoun County, finally graduating with the highest honors of his class in the academy at Leesburg, Va.

At sixteen he entered mercantile business, but that not suiting his energetic disposition, he came to Washington and entered the office of his present partner in 1882. Beginning at the lowest round he mastered every detail of the patent business, making himself an expert draftsman, and constantly studying every branch of learning which would qualify him to do well whatever might be placed in his hands as a solicitor. In 1884 he was awarded two prizes, one for proficiency in knowledge of patent office practice and another for proficiency and thoroughness in patent law. While prosecuting his profession diligently he began the study of common law, and graduated as Bachelor of Laws from the National University in 1890; was admitted



to the bar of the supreme court of the District of Columbia in the fall of that year and continuing his studies received the degree of Master of Laws in 1891. Subsequently he became a member of the bar of the U. S. circuit court of appeals for the sixth circuit, and of the supreme court of the United States. He practices before all United States courts, confining himself, however, strictly to patent litigation, and his firm thus far has succeeded in winning every legal case entrusted to them. In 1891 he entered into partnership with his former employer, since which time he has been actively engaged in soliciting patents, and in patent litigation in the U. S. courts in many sections of the country.

Among the cases which have been defended by Messrs. Alexander & Dowell and argued by Mr. Dowell, the most interesting to newspaper men is the well known litigation between the Campbell Printing Press and Manufacturing Company and the Duplex Printing Press Company over the Cox-Duplex flat-bed type-perfecting printing press—wherein after various proceedings the Campbell Company have been worsted in Massachusetts, and New Jersey.

Mr. Dowell believes in keeping abreast of the times, and to qualify himself to treat matters entrusted to him, never hesitates at work. He took a special course in electricity and graduated with honor, and while of rather retiring disposition has the ability and faculty of holding his clients by the quality of his services, his unfailing good nature, his ability to work out knotty problems, and his unfailing perseverance and success in securing for his clients that protection in the patent office or in the courts to which they are legally and equitably entitled.

Connected-Lamp System of Kerosene Illumination

Nowhere is the effect of combinations and monopolies so keenly felt as in municipalities where the electric and gas lighting interests combine to raise the price on the means for domestic lighting. Under the ordinary conditions of healthy competition among manufacturers the usual light assessment is endurable, but when by the simple exercise of the power of might this tax is doubled the expenditure becomes a source of annoyance to the average business man. In one of the prominent Connecticut towns the cost of gas was raised to \$2.50 per thousand feet and the electric interests were combined with the gas company, a condition which was intolerable. The consequence was that the business men of the town began to burn oil. Ordinary separate lamps, however, gave insufficient light and were rather troublesome to attend to, so that the demand sprang up for an oil lighting system; the result of which was that there were four systems manufactured in this town alone which replaced the gas to a great extent, and gas is now down to \$1.80 per thousand feet, though the price of oil has risen.

These systems consisted in the required number of argand wick burners all connected by a system of pipes with a single oil reservoir from which they drew their supply. They required very little attention outside of filling the reservoir and trimming the wicks about once a week. As they have been in constant use for 15 years in various localities to light railway stations, stores, hotels, and private dwellings it is somewhat surprising that not more attention has been paid to them in the lighting of isolated dwellings or factories; for all industrial purposes where safety from conflagration is a factor and a high candle power desired these lamps are especially adapted. Certain features could be improved on however, and there may be considerable demand for a system which will cost less to install and at the same time be entirely free from dripping. Separate oil lamps which are removable are dangerous and not particularly ornamental, and it seems that a good system of this kind would replace them.

The connected systems may be thus classified:

- I. Reservoir on a level with the lamps.
 - a. Underneath system of piping.
 - b. Overhead or siphon system of piping.
 - b. 1. Surmounted by air chamber.
 - b. 2. Pump siphon receiver.
- II. Reservoir placed above the lamps.
 - a. Flow regulated by valve and float.
 - b. Flow regulated by mercury seal and float.

The first class seems to be the more successful in practice, although they possess the serious disadvantage which necessitates all the lamps being placed on the same level with the reservoir. This reservoir is under constant head, the excess overflowing into a larger tank beneath it while it is supplied with oil, in much the same manner as with a student lamp, by means of a pipe leading into it from an airtight tank above. This pipe reaches to the constant oil level in the reservoir so that when the oil sinks below its end, air enters the pipe and allows sufficient oil to flow out to regain the former level. By this ingenious means the oil is kept at exactly the same level which is about two inches below the top of the circular lamp wicks. These tanks are made of galvanized iron and all connections are of brass. The oil pipes are made of $\frac{1}{4}$ inch drawn brass tinned tubing, the sections being joined by brass sleeves which are tinned and soldered in place; all connections are soldered also and no leakage whatever results; the metal of these tubes is extra thick which probably accounts for not leaking. The underneath system of piping requires no extra apparatus, the pipes running under the floor and up the side of walls or posts; this is sufficient for bracket lamps, but chandeliers require to be fed from pipes lying above the reservoir and this necessitates a siphon system. There is a considerable quantity of air inclosed in all liquids which can be extracted by a vacuum; therefore in a siphon this air is liable to collect in the highest point of the piping and to stop the flow of oil. One make of lamp provides for this by placing a glass sphere at this point which is filled with oil and as the air gradually replaces the oil the sphere is turned below the pipe, closing both branches of the pipe at the same time; the sphere is then screwed off and filled with oil, replaced and revolved to its former position. In case the siphon is broken this is repeated until the pipes are filled with oil. These bulbs must be filled with oil about once a week.

Another maker dispenses with the spherical air receiver and has two parallel pipes of which the return pipe is much the smaller and is connected with all the lamps, being the supply pipe of the

system. When the siphon is broken, a small plunger pump in the reservoir throws a strong current of oil through the pipes and drives the air along with it back into the reservoir, after which the oil siphons as before. Either of these devices are troublesome and there is plenty of room here for an automatic siphon sustainer which would be simple and inexpensive.

When the reservoir is placed above the lamp we have oil delivered to the lamps under pressure and the problem is a more complicated one. Where the flow is regulated by a float and valve there is considerable difficulty experienced in keeping the valve tight enough to hold oil under pressure even if the oil is perfectly free from solid particles to clog the valve. This system therefore is troubled by leakage, consumes a great deal of oil and the valve requires considerable care. The reservoir is here located on the floor above the lamps and is piped to them direct, the pipe terminating in a small reservoir located near the lamp in which is placed the float operating the admission valve. Being kept at a constant level of about two inches below the top of the wick the lamps work well, but the difficulty lies in maintaining this level constantly, for leakage of the lamp is sure to accompany a leakage of the admission valve and a consequent rise in level of oil in this small supply reservoir.

The valves used are triple seated cone valves or an elastic cushion of specially adapted composition which is pressed by the float against the reduced end of the supply pipe. Under the best conditions it is difficult to get a valve to hold oil and it is not surprising that these often deliver an excess to the lamps and cause smoking and dripping.

Valves have been dispensed with by other makers and a mercury seal substituted. The device consists in a small reservoir and float as with the previously mentioned type; upon the float, in the case of a chandelier, is placed a long cup of mercury into which the fixed supply pipe runs. When the oil in the small reservoir is at normal height the weight of mercury outside the supply pipe just balances the pressure of the oil inside; as soon as the oil level lowers the float and mercury cup fall, reducing the height of mercury outside the supply pipe, thus permitting the oil to rise up through it, overflow into the small reservoir and cause the float to rise until pressure is again balanced and the flow of oil is shut off. It will here be seen that the flow depends upon two factors, the level in the small reservoir and constant lead of oil in the supply pipe. When the float works freely the first condition is satisfied but as the supply reservoir above empties, the head of oil decreases and causes irregularity of working, making the system slightly faulty. These lamps need careful adjusting and pure oil, when they work well. The principal advantage is perfect freedom as to the level of the lamp; chandeliers, desk lamps and cellar lamps can be fed from the same reservoir. Sometimes, as in the British systems, the supply pipe is raised and lowered in the mercury by a float attached to a horizontal arm hinged at one end and carrying the vertical supply pipe at its middle, or the supply pipe may be fixed and the mercury caused to rise by plunging a hollow closed cylinder into the cup by means of the float and lever; in either case the height of mercury outside the supply pipe increases as the level of oil rises in the small reservoir.

These lamps burn about 0.045 gallons of oil per hour and have an illuminating capacity of 38 candle power. One lamp burning one hour, counting kerosene at 8 cents per gallon, would therefore consume about 0.36 cents worth of oil (150° fire test, water white). To furnish gas of 38 candle power would require two gas burners consuming 4.75 feet of gas per hour each, or a total of 9.5 cubic feet per hour. Counting gas at New York City prices (\$1.25 per 1000 feet) this would foot up \$1.19 cents, as against 0.36 for oil, or in the ratio of over 3 to 1. There are many stores which would be glad to save 66 per cent of their lighting bill even at the expense of a little more trouble in the filling of tanks and cleaning of globes once a week. A system of this kind costs about \$20.00 per lamp to put in, which is rather excessive; a manufacturer or inventor who can reduce this one half will find sale for his lamps.

The largest water-storage reservoir in the world is now in process of construction by the city of Boston, its intended capacity reaching the enormous figure of sixty-five billions of gallons or enough to supply the city for three and one-half years, and four times as much as the capacity of all its existing water works reservoirs. The vast capacity named is twice that of the new Croton reservoirs of New York, thrice that of the six reservoirs of Birmingham in England, thirty times that of the Cochituate of Boston, and will hold more than Boston's inner harbor. The dam is located at Clinton, Mass., and the vast volume of water, covering over 4,000 acres, will be entrapped and retained by a dam some 1,250 feet long, 127 feet high above the ground, and some 158 feet high above its rock foundation. No such immense engineering work has ever before been undertaken in New England.

Hon. S. T. Fisher.

Hon. S. T. Fisher formerly assistant commissioner of the U. S. patent office resigned on June 1, to accept membership in the firm of Wilkinson & Fisher, which firm was previously known under the name of Whitman & Wilkinson but, subsequent to the death of the late Chas. S. Whitman, has been conducted by Mr. Ernest Wilkinson the surviving partner.

Mr. Wilkinson found that his business had grown to such proportions that it was necessary for him to have the assistance of a partner thoroughly qualified to meet the requirements of an extensive technical practice and in Mr. Fisher he has secured one who is fully capable.

Mr. Fisher is a graduate of Harvard and subsequently took a special course in the Massachusetts Institute of Technology.

In 1886 he entered the U. S. patent office as fourth assistant examiner and was successively promoted through the grades of third, second, and first assistant examiner and law clerk to the position of principal examiner which he resigned in 1893 to accept the presidential appointment of assistant commissioner of patents.

Mr. Fisher has been for a number of years a member of the Massachusetts bar.

As assistant commissioner of patents Mr. Fisher's decisions were always considered by the members of the profession as eminently fair with possibly a little bias in favor of the inventor rather than of the examiner, and he carries into the practice of patent law a mind well equipped for the onerous duties of his profession and an experience of the men and methods of the patent office which could not be excelled.

Mr. Fisher has made application for membership in the Patent Law Association, of Washington, D. C., with whose aims he is in hearty accord.

Magnitude of the Patent System.

Few persons have any idea of the vastness of the inventive genius of America as recorded in the United States patent office. Not long ago a librarian wrote the commissioner that he desired to obtain a copy of each patent that had been issued by the United States government.

An estimate was made of the time it would take one clerk to take from the files of the office a single copy of each patent. There are nearly 600,000 of these patents, and printed copies of each are kept in bundles with the number of the patent marked on the cotton wrapper for quick reference. There are trained men, ten of them, whose only work is to take these printed descriptions of patents from the files to furnish any one who desires to purchase them. They are quick in handling the bundles, yet it is estimated that it would take one of these experts three years merely to pull from the racks a single copy of each patent filed in the office.

As this class of labor is paid \$500 per annum the cost to the government of getting out the patents from the racks would be \$1,500.

For five cents the patent office will give anyone a copy of any patent that has been issued by the office, and complete sets of these patents would be supplied at one cent for each patent. That seems to be cheap but a complete set would cost about \$6,000, while their binding and assortment for binding would make the whole expense of such a set of books not much less than \$10,000. When bound they would make 1,000 volumes, each as big as Webster's Unabridged Dictionary. Few patent agents aspire to have complete sets of the patents, and few of them have offices big enough to hold a complete set if they should get them.

The patent office is operating on antiquated lines in a number of respects merely because congress will not allow the money collected from patentees to be spent for their benefit, but keeps locked up in the treasury department a surplus from this source amounting to about \$6,000,000. In no better way is the expensiveness caused by this lack of facilities better shown than in the system of storing the printed copies of patents. As shown above, it would cost \$1,500 in labor to collect from the files one copy of each of the 600,000 patents. If these patents were stored conveniently, instead of being scattered in every available place, from cellar to garret, of the patent office building, and if they were kept in properly constructed filing cases, instead of being wrapped in cotton, one man could do the work of five at present. As it is, ten men cannot take patents from the files rapidly enough to supply the demand of inventors and attorneys who daily make application to purchase them.

Scores of times commissioners of patents have appealed to congress for a proper building in which to do its work, but every year a surplus of \$150,000 is turned into the treasury, and no attention is paid to urgent appeals. The patent office has never cost the government a cent, and congress steadily turns a deaf ear to petitions for improvement of its facilities.—*Washington Star*.

The Inventor and the Technical Journal.

Under the above heading Mr. Albert Scheible, in the *Electrical World*, pays his respects to that class of so-called "Inventors' Journals," and "Patent Solicitors," who thrive by the application of unprofessional and dishonest methods. Probably no class of individuals are so beset by frauds and fakirs as the American inventors, and the knavish patent solicitor is no less in evidence than the swindling patent selling shark. The article of Mr. Scheible, although whittened primarily for an electrical magazine, applies with equal force to the entire range of technical journals. Inventors should beware of mere catch-penny publications, gotten up with a semblance of legitimacy to fool the gullible inventor. Mr. Scheible says:

Progress in the electrical line depends largely on men of ideas—and what thinking man is there that does not have frequent ideas such as might blossom into useful and money-earning devices? If the idea is developed into a reality we call it an invention, but very few ideas reach this stage of development. Most of them are dropped while mere buds, others are partly opened out before they are thrown aside, and only very few are given the time to bloom into a reality. The fate of the idea depends largely on the inventor himself, and he in turn is guided both by his business environments and by the reading matter within his reach, though few inventors seem to realize the effect of these influences on their work. To be sure the average inventor is eager, very eager, for progress, and therefore willing to take any hints which might make his work more enduring and effective, but he is often subject to just the worst sort of influences without being aware of it. He may not realize what some of us call "the power of the press," yet he cannot escape from it. His only safeguard lies in calmly surveying the reading matter within his reach; then if he can see what effect journals of various classes may have on others of his stamp, he can bar out anything that might be misleading and pick what is sure to be helpful.

With this in view, let us look at some of the periodicals which we find close at hand, and note their inherent tendencies, for it is these tendencies which mould the effect of the paper on its readers. First in accessibility is the ordinary newspaper, with its sprinkling of semi-technical articles, which range all the way from the accurate and reliable to the purely and recklessly imaginative. Perhaps all of these articles have their proper sphere, but a single reliable article will often inspire credibility for countless others based on the imagination of a technically ignorant and not overscrupulous reporter. Then how is the reader to tell what is truth and what is fiction in these newspaper articles? Even the reprinting of articles which have appeared in technical journals is not always safe, as the man with the shears may clip only a portion of the original article, and this may be misleading when taken out of its original connection. So we may well ask ourselves if it is wise for us as inventors to pay much attention to what appears in our daily or weekly newspapers.

But the man of ideas rarely confines himself to newspapers for his inspiration. He wants some literary reinforcement every week or every month from what seems to him more reliable sources. Then he is confronted by two classes of periodicals, and it is to these that I call special attention. The first class (and the one which is most actively urged upon the average inventor) is that of the "Inventors' Journals." These parade under various names, and with few exceptions help to advertise the patent agency run by the publisher of the paper. Nominally such a journal will claim to work for the reader's interests, but when you analyze the case carefully you will usually find that the efforts are directed at getting each reader to pay repeated fees to a certain patent solicitor. The more numerous the patents, the more fees will the inventor pay; hence we must not be surprised to find such a paper advertising the general and indiscriminate patenting of ideas, regardless of whether or not there is any possible chance of the being of value. Some of them even offer premiums to entice ideas, which otherwise would get their well-deserved shelving. Should any doubt exist in the mind of the inventor as to the patent-worthiness of his device, they divert his attention from this uneasiness by offering to refund his fee in case they get no patent for him. In other words they guarantee to help him spend his money in getting some sort of a patent, regardless of the probable commercial worthlessness of the document they obtain for him. What matter to them if the device had been broadly covered by a previous patent, so that the inventor could not market it without inviting trouble? They might still procure a detail patent on a specific modification of the old idea, and "a patent" is all they agree to get. Whenever this is the case the money required has simply been

thrown away, and there may be none left to spend on a broad patent for a really novel and promising device. Every issue of the Patent Office Gazette contains hundreds of just such patents, which mean a complete loss of both time and money to the inventor, merely because he followed the advice of such a patent-enticing sheet.

But much as the existence of such journals is to be deplored, it must be remembered that they are supported; and to a large extent encouraged, by the men of ideas, who ought to have better notions as to their proper course. These papers merely echo and impress some common but false notions about patents, so we must correct these ideas before we can suppress such journals. Chief among these notions is this: that the patenting of an idea gives it value. Now, anyone who has read the wording of a patent knows that it makes no pretense in this direction; it merely gives a temporary governmental protection to the inventor so that he may exploit his device and reap returns from it himself instead of having others copy it and thus steal the benefit of his time and thought. If the device patented was a worthy one and one that would sell at good profit, the inventor can make money; but if it had no prospects of commercial success in it (so that no one would trouble himself to copy it) what is the use of spending money for a seventeen years monopoly of it? The most remunerative inventions are usually those which would bring good returns even if not patented; but they might never be fully developed, or might be kept secret and lost to the public. Hence the government says to the inventor: "Come, tell me all about your device, so that any one can learn how to make. If you have something new, my people want to have the benefit of it, and you ought to be the sole maker for many years, so that you may reap the returns for your labor. I will give you a seventeen-year monopoly on anything new and useful that you will fully disclose to my people." Does the average inventor realize this as the gist of our patent office methods? Hardly. To him a patent is something which gives an imaginary value to his ideas, for why should he pay from seventy-five to a hundred dollars for a government paper if that did not brand his invention as belonging to the same category of bright ideas from which others have made fortunes? Then when a patent is issued to him he feels that he has something of great value in his invention. If he would then wait until time shows the truth or fallacy of this belief, he might save himself a good deal of money and of worry; but he may strike another and apparently promising idea very soon and he thinks that this must be patented, for what value would be apparent in it without a patent? Then his favorite journal is the one that tells about the inventions needed; indeed, he thinks that any printed list of "hundred inventions needed" must cover the ones wanted from him. So away goes his cash on government and attorneys' fees, for it rarely takes a person of good imaginative power long to evolve quite a number of patentable ideas. Now is this a logical procedure? Does it not stand to reason that the inventions most needed and most likely to be remunerative must also be the most difficult ones to evolve, and that they must usually be worked out by those most familiar with the particular class of work to which each one relates? Will an outsider who spends a few hours or days in thinking about something in your line of work be likely to understand the real needs as you have learned them by years of observation? And is such an outsider apt to know what has already been tried for the same purposes so as not to practically duplicate what may have proven to be a failure? It seems to me that one who would invent a really patent-worthy device must make himself quite familiar with the exact conditions under which such a device would be used and also with the history of other attempts at filling the same need. The average man of inventive talent does not do this, does not even stop to think about his work from this standpoint. Then the years roll on, fortune forgets to shower her riches on him and he wonders what it was that he overlooked; or if he sees how rashly misguided he was, he may ask where he could have found better guidance.

Speaking of this article the *World* editorially says:

The suffering of inventors, those of the obscure type who delude themselves into the belief that a fortune is to be made from the development of some idea they have evolved, furnish a sad spectacle. There are many self-deceived and ignorant men who waste their time and their money, and frequently end in a sort of fanaticism over inventions which are absurd, or at least worthless. The lives of most of these, condemned to work endlessly in the pursuit of a shadow, are sufficiently miserable to entitle them to the compassionate regard of the successful. Their release from their bondage can only be accomplished by their instruction and their enlightenment.

There are no class so unfortunate that some individuals cannot be found to prey upon them, and use their very misfortunes as a means of profit. Even the poor inventors, the struggling mechanics

and artisans who think they can revolutionize some important art, the farmhand with a cog-wheel machine for perpetual motion, are the support of knavish patent attorneys, who encourage the delusions of their wretched clients that they may ring out a few more dollars for fees. Not content with such victims as may drift into their nets, these wily individuals lure them by printing and circulating a variety of periodicals, beginning nowadays to be notorious as "Inventors' Journals."

In these the wonderful rewards of successful inventors are described in glowing language. The value of "ideas," no matter how crude or unformed, is preached with fervor. The glittering bait of success is held before the gullible inventor, and he is promptly ensnared. Then the adroit attorney begins to bleed the victim. The whole system, from the plausible journal to the final, generally worthless patent, is a little better than a heartless swindle.

American Railway Project in China.

Under date of March 1, 1897, Consul Child writes from Hankow:

Messrs. Rich, Bash, and Butchard, American citizens, left Hankow this morning for Peking, traveling through the provinces of Hupeh, Honan, Shansi, and Chihli, for the purpose of surveying a route for a railway from Hankow to Peking and of deciding the practicability of bridging the Yellow River. They start well equipped with a retinue of seventy-five men (coolies) and expect to be seventy days in transit. They had an interview with the viceroy, who received them pleasantly and gave them much valuable information. The Chinese officials are awakening to the importance of opening up their country by means of railways, and are willing to render all the assistance in their power in the furtherance of that object. No one conversant with the latent resources of this country can doubt that trunk lines of railway will pay a handsome dividend when completed. The three cities of Hankow, Hanyang, and Wuchang have a population of over 2,000,000 and it is estimated that 50,000 persons arrive and depart from here daily, as this is the great central depot for the Han and Yangtze valleys. Thousands of junks lie along the river banks and the mouth of the Han looks like a forest of trees denuded of foliage. It is to be hoped that our people may secure a permanent footing in China, as there is a vast field for American enterprise. Now that the Chinese are willing to meet the foreigner half way, it would be well to take advantage of the opportunity. It is but a question of time when a line of steamers will be put on the Yangtze from here to Chungking and a line on the Han, which is navigable for over 600 miles. Above Chungking, the river is navigable, for small steamboats, several hundred miles through one of the most productive sections of China; in fact, the heart of the Empire.

Oldest Inclined Plane Railway in the World.

The oldest inclined plane in America, and probably the oldest in the world, engaged in the transportation of passengers, is the Mount Pisgah plane near Mauch Chunk in the Lehigh Valley, Pa. One of the peculiarities of this place is that the ropes are not hitched to the passenger car, but to a special car or truck, known in the anthracite region by the name "barney." This truck acts as a pusher against the passenger car. It is on the lower side of the car, and thus, when the hoisting machinery is brought into action, the barney is pulled up and, in turn, pushes the car ahead. There is a peculiar arrangement on this barney that should be mentioned, namely, instead of two axles it has four half axles, each with a wheel mounted on it, and these axles are so attached to the truck frame that the wheels may be brought closer together, and thereby the gauge reduced, or they may be spread for a wider gauge, as the situation may require.

The barney does not stand on the same track as the passenger car, but on a track located within a sloping trench, and this track is considerably narrower than the track on incline and also on the ground level upon which the passenger car stands. At the point where the slope begins there is a switch, by means of which the wheels of the barney are adjusted to suit the gauge of one or the other of the tracks upon which it is to enter.

When the barney descends into the trench to a depth where it disappears below the ground level, the passenger car is free to move back from the inclined plane. The purpose of this arrangement is to avoid the necessity of permanently hitching the rope to the passenger car, because this latter is not only to travel on this plane, but to continue its journey on two other planes, all of which, combined with several gravity inclines, constitute a circuit by which the tourist travels over three inclines and three intervening slight down grades.—*Samuel Diescher in Cassier's Magazine.*

NEW INVENTIONS.

Spring Rocker.

A new spring rocker is the patented invention of Michael W. Nevens, of Port Washington, Wis. It is simple in arrangement and has the appearance of being a good thing in its way.

The seat base which has a convex surface, tapering toward the back end is connected at the front with a recurved steel spring, the upper part of which receives the bearing of the chair when in rocking motion. The spring extends backward in V shape and engages with its lower front end the frame which rests upon the floor. This latter is joined to the chair seat only by the intervening spring.

Lamp Overflow Protector.

Attending to oil lamps requires considerable care, and filling them is often accompanied with disagreeable consequences. Unless one is very careful in this work, an overflow of oil is apt to occur, especially in opaque lamps; and outside of the danger of fire, some time consequent upon this happening, the inevitable grease spots and the waste of oil is a matter of consideration.

As a prevention for overflow when filling lamps, Emily A. Clingman, of San Francisco, Cal., has recently patented a simple and effective device. It consists of an elastic disc having upturned peripheral flanges and an opening in the center. The disc fits closely around the top and inner sides of the filling nozzle of the lamp, but leaves a hollow space in the nozzle hole, with an elastic shield at the bottom. In the latter is a small hole in which the oil can spout is inserted, filling up the orifice and preventing overflow to any great extent; if there is any, it is caught in the elastic cup in the filling nozzle.

Ladder and Ironing Table.

Ross V. English, of East Texas, Mich., has patented a combination ladder ironing-table and bench. The ironing-board which has a notched end—is fastened to a step-ladder at one end by a continuous hinge spanning the width of the board. On both sides, and attached to the ladder at one of their ends, are beams of wood, acting, as occasion requires as supports for the ironing, stays for the ladder, and one of them, with a wide transverse section at the outer end—as a bench seat. When the combination is a ladder, the ironing board is the back brace; and when it is used for ironing, the board is folded over the ladder and the beams brought down into perpendicular position. When not in use the apparatus can be folded up and set away in a convenient corner.

Candle Holder for Christmas Tree.

Alfred W. Hoffman, of New York, has made an invention which should please the children. This is a holder for those pretty little candles which light up the beauties of the Christmas tree. The holder has a drip-cup for keeping candle grease from spoiling the toys, etc.; over the cup are radial arms forming at the top a candle socket, and extending beneath are spring prongs adapted to engage the tree branch. Except the pan, the whole thing is composed of wire, and is convenient and attractive.

Electric Cigar Lighter.

The humble match and the little gas jet used at the cigar stands is in a fair way to have a rival. Henry M. Handshy, of San Antonio, Texas, has recently had a patent issued him for an electric cigar lighter—one that will not, like the gas jet, go out when it is puffed into, nor like the match, pop and sputter or leave a taste of sulphur on your "two-fer" or perfect.

The electric lighter is an upright stand bearing an inclosed lamp at its top, and having a lighting-handle furnished with a platinum plate, and connected by wire with a fulcrumed lever near the top of the standard. The electric circuit is made by manipulating the handle and bringing the lever into play, after which operation the smoker applies his weed to the lighting. The supply wires lead up through the base of the standard.

Cabinet and Coffee Mill.

Jesse M. Curtice, of Kansas City, Mo., has recently conferred a favor on the cook, by inventing and patenting a kitchen cabinet, which is not only useful as a repository for coffee, but is conveniently

arranged for holding a coffee-mill. The latter is secured under the coffee compartment and is completely enclosed, except the handle-crank. It is only necessary to put the coffee into the cabinet, and when the fresh-ground grain is required, a little "circular motion" will cause it to pour into a drawer placed in the cabinet, under the mill. This arrangement is simple, but it keeps the coffee fresh, and free from dust and odors of the kitchen. It also does away with wrestling with the coffee-mill, which often must be embraced with the knees to be kept from turning round in all directions.

Bottling Apparatus.

One way of filling bottles is by means of a small rubber tube inserted into the liquid barrel, sucked (the tube, not the barrel) for a moment to get the air out and then put (the outer) end into the bottle. This is simple and effective, on a small scale. But Alvin J. Donally, of Passaic, N. J., has patented an apparatus whereby a number of bottles can simultaneously be filled with liquid and at the same time be injected with air or gas.

In this there are two vessels for taking the liquid from the keg or barrel, and delivering it by pressure through a conductor to an upper chamber or vessel, to the under side of which are connected a series of filling tubes. At the end of the latter are bell-mouth attachments which cover the bottle mouths when they are to be filled. When, upon filling the bottles, there is an overflow, a second conductor, assisted by a pump, takes the surplus liquid back to the vessels, avoiding by this means, loss and slop. So the filling is not only quickly and neatly done, but gas or air is also added to the contents of the bottles if desired.

Oyster Tongs.

Although this is not the season for that popular mollusk, the oyster, it is a good time for inventors to bring out good apparatus for catching them, and thus get ready for the "busy season." The old process for catching this bivalve is usually tedious and slow; but Edward Cubel, of Tampa, Florida, has invented and patented a new idea which should be of advantage to oyster fishermen. This consists principally of a single shaft, at the bottom of which are a pair of forks; one set stationary to be used as a rake, and the other set working on a pivot, and attached to a sliding sleeve on the shaft, so as to be closed upon the rake, by drawing the sleeve upward, when the oysters are gathered in the rake-portion of the receptacle.

Rat Exterminator.

The uses of cork are many and various, and the field of the cork tree is continually growing larger. The use of this material as a life saver has been long known; but it has not come forward as a life destroyer until recently, when a patent for a formula, in which it enters largely, was granted Friedrich Bardale, of Milwaukee, Wis. This formula is intended for killing rats. The cork is mixed with some rat palate-tickler and a good thirst producer and placed where the rodent loves to gambol. When the compound is eaten, the rat seeks water and immediately gets too large for further usefulness. The exterminator is cheap and as rats are plentiful there is no reason why the law of supply and demand should not operate in favor of the inventor.

Clothes Lifter.

An apparatus for lifting clothes from a boiler containing hot water, is the patented invention of Charles E. Doolittle, of Plantville, Conn. To perform the work of lifting hot clothes from the boiler without scalding the hands, a lever, pivoted to an upright—which is removably fastened to one end of the receptacle—is used. In operating, the lever is swung down until one end engages the clothes, and then is swung upward and around dropping its load into a convenient tub. By this means labor is lightened, and the need of arnica and other lotions, ect., for burns and scalds, is obviated. Wash-day is a bug-bear in most families, and anything that will help smooth its difficulties should be welcome by the busy housewife.

To Prevent Refilling of Bottles.

Sallie A. Saeger of Allentown, Pa., has been granted a patent for a non-refillable bottle. This consists principally of a bottle having an internal stopper in combination with a case or box, in which is journeled a revoluble wheel. A valve at the bottom of the case opens inwardly to the case, which has an outlet at its top. The wheel revolves one way only and is so adjusted that it fits the case closely at the top and sides, and effectually pre-

vents tampering with the valve. It seems impossible to put anything into this bottle after the stopper has been once inserted.

Detachable Shelf for Windows.

A new invention consisting of a detachable shelf to be placed outside of windows, is the recently patented idea of Oluf Volkerts, of Sac City, Iowa. The device comprises three shelves, arranged one above the other, supported by small iron rods and held to the window frame by hooks. It is apparently designed to be light, easily put in place, and removed at will. To those who love window-gardening this shelf should recommend itself, for it seems just the thing for such a purpose. Besides this, it can be used for many other things, such as one would like to have the sun shine on or the rain to benefit.

Boot or Shoe Heel.

It is said that that the sudden impact of the shoe heel upon a pavement, is productive of more or less nervous disturbance in the human body. If this is so, an invention that will reduce this shock by the heels to a minimum, is of consequence. With a view to the remedying of this difficulty, William G. Anderson, of Boston, Mass., has recently patented an elastic heel attachment, secured to and under the shoe heel. The elastic, while in itself lessening the force of ground impact, is assisted in its work by a recess in the shoe heel, which acts as an air cushion.

Bread Raiser.

It is according to the fitness of things that a woman should invent those things which pertain to her household affairs. Susanna R. Quimby, of Omaha, Neb., has been given a patent for a new bread-raiser, which will make dough puff up to the cook's satisfaction. The arrangement of the dough-raiser is quite simple, consisting of inner and outer imperforate pans and an intervening water-receiving space. There is a drawing spout, opening automatically, when the pan is hung up to dry. The bread-raiser is one that should recommend itself to housekeepers.

Monuments of Glass.

When the recently patented idea of William A. Hammond, of St. Louis, Mo., gets in working order, the plate glass industries should have a new and good market for their wares. This invention is for making monuments, in the production of which glass will enter largely.

Upon any suitable base plates of glass are built upward placed end-to-end, but taking a transverse form at the various shoulders of the monument. There are inside anchor-rods which extend upward from the base and outwardly, carrying on their outer ends metallic plates that engage the outer faces of the vertical plates of glass. Besides this there are anchors attached to the vertical glass plates, extending inwardly, and engaging with the filling of the monument, an artificial-stone compound.

A monument of this kind should present a very attractive appearance, while its durability is beyond question. Outside it will possess the shining finish of glass through which can be made to appear the color or varieties of color belonging to marble or other material. The filling of the monument can be treated for producing these effects; and as air will be excluded from the inside they should be lasting.

Churn and Butter-Worker.

A recent patent for a combined churn and butter-worker was issued to Reuben B. Disbron, of Owatonna, Minn. The churn is a rotary drum arranged horizontally, with an inside apparatus for manipulating the butter after it has been extracted from the fluid. The butter-kneading mechanism is operated by the crank lever used in churning the milk. The double use of the machine not only facilitates the work of butter-making, but it renders unnecessary the employment of an additional vessel for working the butter.

A Motor-Power Sleigh.

When winter's chilling blasts come and the snow begins to fall, there may be a new wrinkle introduced in the way of sleighs—one that will no doubt attract attention, if the patented idea of John G. Fritz, of Columbus, Ohio, has its evident merits commercially recognized.

This sleigh is designed to carry a number of persons, and contains three seats arranged transversely. The runners are separate, located under the front and back portions of the body, and midway between these is fixed a large toothed-wheel

(for engaging the ice) geared to the power-shaft wheel of a motor by a driving-chain. With these there is a steering apparatus, a snow-fender and a headlight. With sufficient motor power a sleigh of this kind should skim the ice with great rapidity and furnish pleasure for the riding public, and profit for the inventor.

Marine Velocipede.

While the bicycle is skimming the earth in all directions, the water velocipede is not as yet very much in evidence. But the latter, though slow in getting a foothold (or a wheel hold) is nevertheless claiming attention in the inventor's mind, and after awhile our bays, rivers, etc., will be burdened with the craft of the "pedal mariner." Luther V. Moulton, of Grand Rapids, Mich., has patented an idea which will further this interest. It is a water velocipede having a single water wheel working between two long cylinders, which serve as floats. The paddles are secured to the ends of single rods that extend from the axle. The front and top of the wheel are covered by a curved housing, through the lower portion of which works the chain gearing in connection with the usual sprocket attachment and pedals. The "navigator" sits on a saddle of the bicycle kind, in front of the housing—which prevents water from the wheel wetting him—and guides with a handle-bar that controls the steering gear.

Adjustable Chair.

A patent for an adjustable chair, which allows the user to sit high or low, has been granted Henry S. Jordan, of Grand Rapids, Mich. Heretofore the users of spindle chairs have been obliged to turn the larger portion of the chair when raising or lowering the seat; but in this new chair—which has three legs and a back, continuous with its supports—the spindled seat moves up or down without moving other portions. Besides the seat, the chair consists practically of three pieces; the continuous back, and the front leg, which curves to a horizontal position at its upper portion and engages with its forked ends, the legs of the back. The seat spindle works through the curved part of the front leg.

Bath Tub.

A shower-bath, hot air bath and ordinary bath, all in the same bath-tub, is an arrangement which is useful, pleasurable and convenient. For a tub of this nature, Morris C. Mengis, of Sheepshead Bay, N. Y., has had a patent issued him. The tub has a cover at one end of which is a dome containing a spray-nozzle connected with a rubber tube leading to a water supply source. This furnishes the shower-bath. When hot air is desired, the dome can be removed and a register inserted, whereby heat can be brought into the tub.

Electric Race-Horse Carousel.

The invention of James W. Daniels, of Patterson, N. J., provides for a hobby horse carousel run by electricity in a manner that allows the rider to increase or decrease the speed of his silent steed at will. The horse is mounted upon uprights rising from an independent motor, in connection with a wheeled truck running upon rails. The motors receive their power from a central source of supply. With this arrangement, one can ride with the speed of a race-horse, a roadster or a dray horse—fly through the air or "amble" along.

Bicycle Pedal.

Edward S. Richards, of Chicago, Ill., has patented a new pedal for bicycles, which has a rubber-topped foot-rest supported by upward and outwardly curved springs, extending from the forward part of which is the toe clip. This should make pedaling easier, and reduce the strain on the rider's foot.

"The Growth of Industrial Art."

Attention is called to the fact that a second edition of the work entitled "The Growth of Industrial Art," prepared under the supervision of the Hon. Benjamin Butterworth, has been published. This work is specially valuable as illustrating in a graphic form the development of the mechanic arts, and will form a very important and interesting addition to public and school libraries, and also the private libraries of inventors and others interested in the progress of inventions. It is issued in folio form and contains two hundred pages of illustrations. One thousand copies were printed by order of congress for sale by the Secretary of the Interior. The department has no copies whatever for gratuitous distribution. The INVENTIVE AGE will send the work to any address for \$2.50.

The Patent Octopus.

There is something fatally defective in our public school education and in our laws that they leave so large a class of our people uninformed and unprotected against the schemes of adroit robbers, patent sharks and octopi, who use the press of the United States for their shingle and the United States mails for their tentacles. There are fads in robbing as in everything else, and, just now, the fad is to persuade poor dullards that fortunes are waiting for them in patents, which it is so easy for them to invent.

Patent agents are flooding the country with "lists of inventions wanted" and with stories of astounding fortunes made by inventors. The inventions are, of course, not wanted, nine-tenths of them already patented; but the patent octopus gets his fee as soon as he states that the thing is patentable and he then files the application, to keep on the safe side of the law. Having the fee in his pocket, he gives himself no further concern about the interests of his dear client. The application for patent is in due course refused by the United States Patent Office. Meanwhile, the hapless inventor is perhaps selling his farm or house in order to raise capital to exploit his promised patent or to patent it in Europe, South America, and Asia, for the unscrupulous bandit who has him in tow has told him that he will not only get him foreign patents, but will sell them for him. Finally he becomes impatient of the delay in the issue of his United States patent. He writes his attorney. If he gets an answer, it will be an evasive one. Probably his attorney will not answer him at all, and he will find by writing to the Commissioner of Patents that his application for patent has long been rejected.

This is a story that tens of thousands of applicants for patent will recognize.

A bill is pending in the United States Senate making it a misdemeanor punishable by fine or imprisonment for an alleged patent attorney to offer prizes or medals to his correspondents.—*Round Rock Searchlight*.

The Doolittle Automatic Bicycle Brake.

United States and foreign patents have recently been issued to Perry E. Doolittle, a physician of Toronto, Canada, covering an invention that has become well known as the "Doolittle Automatic Bicycle Brake," which has proved itself to be the most ingenious and effective brake of the kind on the market, its practical merits being attested by the fact that it has been adopted by six of the leading bicycle makers in this country and by nearly every prominent cycle firm in England.

The brake is automatic in operation and is controlled entirely by the back-peddalling of the rider in either voluntary or involuntary checking the forward movement of the bicycle. It is fitted to one end of the hub of the rear wheel and is so small and compact as to be almost unnoticeable. The rear sprocket wheel is so mounted on the hub as to have a slight rotary movement thereon and when this sprocket is turned backward by the sudden checking of the chain in back-peddalling, it forces a laterally-movable metal disk against another disk provided with a friction surface. The contact of these parts produces a brake action proportionate to the force exerted in back-peddalling. Once applied the brake is kept on, by a clamping device, independently of the action of the rider, until the pedals are again impelled forward with sufficient force to overcome the resistance of the clamping means. The same means serve to prevent the accidental and undesirable operation of the brake.

Dr. Doolittle has sold his patents on this invention—taken out by W. H. Doolittle & Son, patent attorneys, of Washington, D. C.,—to an English syndicate for \$50,000 and a share in the stock of the syndicate.

This Practical Age.

The master men of the reign have been, not the politicians and statesmen, the soldiers and sailors, the poets and artists—they have been the engineers, the shipbuilders, the electricians, the men who have yoked the thunderbolts of Jupiter to the hammer of Vulcan and have usurped the authority of Neptune over the waves at the same time they have outstripped the herald Mercury by the speed of their dispatches. The steam engine, the steamship and the electric wire have, in sixty years, effected a more revolutionary change in the conceptions of distance than all the millenniums that have passed since the stone age. When the Queen ascended the throne the United States were six times further away than they are today. India was forty days distant instead of fourteen, Australia six months instead of six weeks. While this shrinkage has been made a practical reality for all manner of

brute substances, a much more rapid and total conquest of space and time has been effected in the exchange of thought and knowledge. The cables have enabled us to beat the sun, to deliver messages in London hours by the clock before they started from India. Today, all news of importance is practically reported simultaneously all over the whole world. Our steamships bridge every sea, our cables link every continent, and commerce, that spider of the planet, despite the temporary hindrance of protective tariffs, is weaving all the nations of the world into one vast web, and the home and nest and central abode of that spider is the country and capital of our Queen.—From "The Queen's Empire: A Retrospect of Sixty Years," by W. T. Stead, in *June Review of Reviews*.

False Stimulation of Invention.

To stimulate invention the United States government has enacted that every inventor of a new and useful machine, tool, utensil, article of manufacture composition of matter or any improvement thereon, shall have the exclusive right to make, use and sell the invention for a period of seventeen years. This stimulation has been quite sufficient, for, under its influence, as has been stated, more patents have been granted in the United States than all the world besides. But recently there has been introduced an additional stimulation in the shape of false statements and deceitful promises about the great fortunes to be made in patents, the result of which is turning the light heads of hundreds of thousands of bread winning dunces from normal toil to illusion, with its direful sequence of ruin and want. It is an actual fact that thousands of men and women are selling farms, horses, cows, and economizing in clothes and shoes for themselves and children because they have been persuaded that a fortune awaits them in a patent for a churn, a washing machine, a kitchen cabinet, a car coupler, nut lock, or in some other of the hundreds of classes of overstocked invention. Many patent attorneys, so called, are flooding the country with "lists of inventions wanted." The inventions are, of course, not wanted. There are, dead in the patent office, hundreds of patents in the same class, and these stimulating, seductive statements are really and only in the interest of the alleged patent attorneys who send them.

The average inventor is credulous. Some, having been taught in the school of experience, are wary, but many even of these have fallen prey to the bold and brilliant talent that has recently appeared in the field. They have been plied with such seductive "literature" and lured by such caressing promises of sale of invention and a fortune only waiting to be grasped that they have overcome their caution and silenced their common sense to find themselves sans money, sans patent, sans sale, and rich only in fresh experience and the chagrin which rough teaching brings.

It is far from desirable that real, genuine, progressive invention should be discouraged or checked, but it is desirable and imperative that the mendacities of patent attorneys shall be stopped, because they are the source of most of that which is spurious and sloppy in the patent office, to say nothing of the ruin and misery of thousands of people fitted only for honest toil. Not half the patents would be applied for if the alleged inventor was reliably advised as to the state of the art, or told that his device was not patentable. The facts are withheld from him until the attorney has pocketed his fee, and he is not only kept ignorant of the truth, but is cunningly plied with assurances of the great merit of his invention, the promise of its ready sale, with an offer to advertise it for consideration, or with a medal alleged to come from a "board of awards," as a certificate of excellence, etc. By these means he is adroitly lured and robbed, not by the bold "stand and deliver" method of old, but by the cowardly and degenerate methods of educated, refined, brilliant and lawyerlike rascality, using the press of the United States for a shingle and the United States mails for tentacles.—*Media, Pa., Ledger*.

A new combination German-English and English-German dictionary has just been published by Laird & Lee, Chicago. It is called the Grimm-Webster dictionary and compiled by eminent experts from the works of the well-known dictionary makers, the Grimm Brothers, of Germany and Noah Webster. Using the new system of German Orthography and containing all words and phrases of current everyday use—30,000 words defined in both languages. A collection of conversation and correspondence forms, irregular verbs, tables of weights and measures, and many other additional features of inestimable value to all classes. Stiff cloth, double index, 50 cents; full gilt morocco \$1. Can be ordered direct or through INVENTIVE AGE.

PATENT OFFICE NOTES.

Changes in Patent Office Force.

A number of changes in the personnel of the patent office examining corps have been made during the past three weeks. The most important was the resignation of Assistant Commissioner S. T. Fisher and the appointment of Mr. Arthur P. Greeley, of New Hampshire, in his place. Mr. Greeley was a member of the board of examiners-in-chief, and the vacancy therein made by his promotion was filled by the appointment of Mr. Thos. G. Steward, of Illinois, former principal examiner.

Mr. Greeley's career in the patent office is a striking example of the benefits arising from an application of civil service rules coupled with the right kind of political backing. Mr. Greeley graduated from Dartmouth College and was appointed an assistant examiner in the patent office in July 1884. As the result of competitive examinations he was made principal examiner in 1891 and was one of the commissioners from the patent office to the World's Fair at Chicago. In March 1896 he was made a member of the board of examiners-in-chief. Mr. Greeley is about 35 years of age and is married.

Two new principal examiners have been appointed in Mr. Josiah McRoberts, of Illinois, and Mr. Jay F. Bancroft, of Minnesota, both of whom were promoted from positions as first assistant examiners.

Thos. C. Tipton, of Nebraska, and Frank M. Ward, of the District of Columbia, were promoted from fourth to first assistant examiners, positions which they formerly held.

Other promotions are as follows: Warren I. Calhaver, of Vermont, from fourth to third assistant examiner; John B. Davis, of District of Columbia, from copyist to fourth assistant examiner; L. D. Underwood, of Indiana, from copyist to fourth assistant examiner; Alan M. Johnson, of Maryland, from laborer to fourth assistant examiner; Floyd N. Barber, of Ohio, from third to second assistant examiner; Walter A. Holden, of Connecticut, from messenger to fourth assistant examiner; Karl P. McElroy, of Ohio, to fourth assistant examiner by transfer from the department of agriculture.

Major D. Gray Purman, of Wisconsin, one of the most capable examiners in the patent office and for years having charge of the class of measuring instruments, died early in May from the effects of a shell wound received during the war of 1861-5.

Mr. George N. Goddard, of Connecticut, resigned as second assistant examiner.

Mr. Michael J. Lyden, of Massachusetts, was dismissed.

Other changes are to be made in the patent office as soon as Commissioner Butterworth can give the matter attention.

It is understood that the commissioner is at work on new rules to govern practice before the patent office, which is believed will more closely resemble the old rules than the code promulgated by Mr. Seymour on the eve of his administration as commissioner which, by the way, has been most unpopular both in and out of the patent office. In fact, some of the principal examiners do not pretend to apply the Seymour rules. Everybody seems to feel that rules made by Commissioner Butterworth will be practical and sensible, so great is the confidence in the present chief of the patent bureau.

Mr. Edward L. Chapman, an assistant examiner in division 24, and who has been believed to be a confirmed, though jolly bachelor, is to be married soon. His class in the office is "wearing apparel, crinolines, corsets, etc.," and it is presumed that he will now gain some practical experience with matters in this class which have heretofore been theoretical.

As a recent illustration of how a really capable man can ill afford to remain in the patent office is the case of an assistant examiner who was dismissed by Commissioner Seymour. Though this man went out under a cloud, which dismissal always raises, whether justly or not, he has earned more money as a patent expert in four months than he would have received for an entire year had he remained in the government service.

The examining corps of the patent office was never stronger than it is today.

An effort will be made to organize a formidable national telephone company in opposition to the Bell Company on the 22d of this month at Detroit, Mich. A preliminary meeting attend by representatives from twenty-three states was held in Chicago two weeks ago.

Patent Law Association Notes.

At a recent meeting of the Patent Law Association the board of managers were authorized to secure a room for a library for the uses of resident and non-resident members. At the next meeting of the board it was decided to lease a large room in the Warder Building, and the committee on library was authorized to furnish and equip same. A number of valuable technical books have been contributed by Messrs. Wm. D. Baldwin and Henry Orth and others will be added until the library is thoroughly equipped.

Messrs. Edgar M. Marble, Wm. H. Doolittle and Samuel T. Fisher have been elected as special counsel to the association to represent it in any matters affecting members of the profession in the patent office.

The special committee on ethics, has had its report adopted by the association and same has been handed to the commissioner of patents. If the recommendations made by this committee are incorporated in the patent office rules, the days of chicanery and fraud by alleged patent agents, are numbered.

A number of new members have been taken into the association in the last two meetings.

Charges Against an Attorney.

Some days ago a number of Washington patent attorneys filed with the commissioner of patents a request that the firm of John Wedderburn & Company be prohibited from using circulars and advertisements in their business which it is claimed are misleading and untrue, and they also charged Mr. Wedderburn with gross misconduct in his practices before the patent office. It is understood that the commissioner has investigated the charges and has called on Mr. Wedderburn for an explanation of same.

Heretofore attorneys have been disbarred from practice before the patent office, only, when it has been shown that they had embezzled funds due the government, but in the opinion of many attorneys it is believed that any conduct on the part of an attorney by which he receives moneys from his clients under false pretences or is guilty of systematically deceiving or imposing on the public in connection with his practice before the patent office should constitute such "gross misconduct" as should disbar the offending practitioner, when the charges have been proven.

It is proper to add that until Mr. Wedderburn has been given an opportunity to disprove the charges in this case, there should be a suspension of judgment in his case.

Suit Brought by Wedderburn.

The prize-offering patent firm of John Wedderburn & Co., have sued the patent firm of Edson Bros., of this city, charging libel in the circulation of copies of a letter alleged to have been written by Laura A. Peck, of Geneva, N. Y., in which inventors are warned against the practices of certain patent firms. Although no firm is mentioned, the plaintiff assumes that the firm of Wedderburn & Co., is the particular firm in the mind of the defendant. The Peck letter speaks of the "confidence-game literature" of so-called patent attorneys, etc., and urges recipients of this class of literature to forward the same to Commissioner of Patents Butterworth, Hon. John L. Thomas, assistant attorney general, P. O. department, or William Small—the latter alleged to be the retained attorney in an investigation now being made by the government. Attorneys and inventors will watch this case with interest and it is hoped there will be no delay in hearing and determining the case. If the practices of Wedderburn & Co. are illegitimate and dishonest, there should be no delay in publishing the facts to the world and if legitimate and fair, as maintained in the complaint of the plaintiff in this action, then in justice to the plaintiff, a speedy determination is demanded.

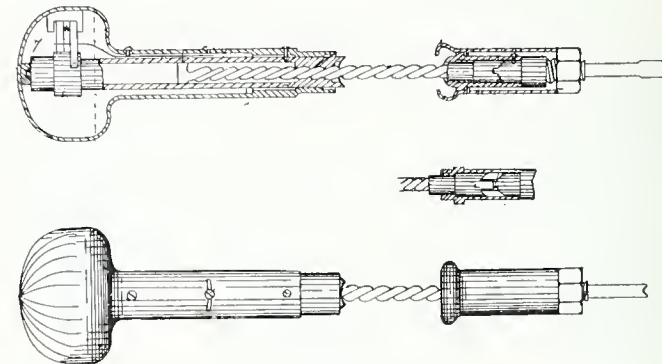
BEGINNING with the next issue a digest of all the decisions of the courts and the department in relation to the leading patent cases will be published in the INVENTIVE AGE. The publication of the weekly list of patents granted will also be resumed and other departments added that will make the AGE almost indispensable to inventors, mechanics, engineers, electricians, promoters, manufacturers, patent solicitors and all who desire to keep pace with the progress of the age.

WALTER ALLEN, a patent attorney of this city, has invented a new and original design for a drawing-board support or carrier for the use of draftsmen, and specification writers that will likely prove popular among that class. By its use one or more sheets of drawing may be readily and loosely secured thereto, copied, kept flat, and handled or carried, and corrections or changes noted thereon without the liability of injury to the drawing. The invention is simple and useful—two essential qualifications.

Combination Screw-Driver and Tool-Handle.

Even modern automatic combination tools have defects and to overcome the objections to the so-called combination screw-driver in present use Mr. John B. Hughes, now a resident of New Hartford, N. Y., has invented and patented the ingenious device herewith illustrated.

In the tools now in use the bits often work loose; the workman's hand gets tired from the continual friction in moving the hand on the handle, and changing the hold consumes much time. Besides there is the danger of "boring" too deep with the spiral screw-driver so that the threads of the screw



fail to hold. The invention of Mr. Hughes combines all the advantages of the various kinds of screw-drivers now in use and is a wonderful time-saver. This tool has a bell-shaped outer sleeve so arranged as to give the best protection to the hand and prevent the "pinching" of fingers so common among operators of the tools now in use.

The cut herewith shows a superior screw-driver and a reversible ratchet screw-driver combined—more efficient too, in any confined space, at arm's length, in a corner, or where a facility to use more power is needed. It is not only a tripple screw-driver, but a useful tool handle for boring, or counter-sinking and can be used very quickly and easily, with no need of adjusting after the bit is in the chuck. The regulating plunger operated by means of a small outer stud at the butt of the handle can be used to set three different motions—a right, left, or centre—and being pressed by the forefinger in the same working hand, gives the left entirely free access to such work as holding a piece of moulding or material in its exact place. In operating all that is needed is the application to a screw, or stove-bolt, gentle pressure and the shaking right or left of the one hand. The inner tube inclosing the spiral inside is extended to the butt part or end of the handle, affording a guidance to the spiral. The chuck part is tapered and is simple, strong, and efficient, with a hexagonal nut outwardly that the bits may be better kept in place while in use. It is of a new design comprising the simple ratchet mechanism within the butt end of the outward tubular handle, the outward part in the butt being ribbed or corrugated to afford a better grip of the tool. Though it has not before been illustrated, or on the market, nor the patent rights sold, it is considered by practical foremen and mechanics who have seen it as the most useful and practical tool of this class known.

Three Thousand Words a Minute.

The possibilities of telegraphy have had another practical illustration by a new method of rapid transmission, developed by Prof. Crehore and Lieut. George Owen Squier, of the United States Army. Experiments have been carried on at Fort Monroe, Va., and the result is a demonstration of the claims made on behalf of the new system. That 3000 words in sixty seconds could be sent and received over a single wire is somewhat astonishing, and may be considerably qualified in everyday practice, but such was the claim made before the American Society of Mechanical Engineers. Among the possibilities of such a system, Prof. Crehore suggested that a few telegraph wires might transmit all of the more important business now conducted by mail. Type writers, he said, could be fitted with automatic devices for punching the characters of the code at the same moment that the operator was writing his ordinary letter-press copy, and these perforated papers would be sent to the telegraph office to be forwarded. Forty thousand letters are carried daily between Chicago and New York, Prof. Crehore said it would take but two wires, worked by the new system, to transmit this entire correspondence and make it possible for a person to send his letter and get a reply in the same day, allowing for the time of delivery.

What may be further developed by this new device will be watched with interest.—*Age of Steel.*

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DEPARTMENT NOTES.

Under this heading will appear the latest orders, amendments to the rules of practice before the Patent Office, list of disbarred attorneys, and bulletins of instruction issued from the Patent Office for the observance of patent attorneys and information of inventors.

Amendment to Rules.

Rule 28 of the Rules of Practice, edition of Feb. 9, 1897, has been repealed and the following substituted:

28. If an amendment to an application be presented more than six months after any action therein, of which notice shall have been given to the applicant, it may not be admitted, except upon a showing duly verified of good and sufficient reasons why it was not earlier presented.

Rule 39 of the Rules of Practice, edition of February 9, 1897, is amended by omitting the following words:

"except when an unexpired patent is involved, in which case the patentee will be the senior party, or, if there be more than one patent involved, the patentee filing first will be senior."

Attention is called to Rule 72 of the Rules of Practice, revised February 9, 1897, which is as follows:

72. In contested cases the parties will file six copies of their printed briefs, the junior party or the appellant live days before the hearing and the senior party or the appellee one day.

This rule applies to proceedings before the Examiner of Interferences, as well as those before the Commissioner and the Examiners-in-Chief.

Rule 51 of the Rules of Practice, edition of February 9, 1897, is amended to read as follows:

51. If, during the pendency of an interference, another case appear, claiming substantially the subject-matter in issue, the Primary Examiner shall request the suspension of the interference for the purpose of adding said case. Such suspension will be granted as a matter of course, by the Examiner of Interferences, if no testimony has been taken. If, however, any testimony has been taken, a notice for the proposed new party, disclosing the issue in interference and the names and addresses of the interferents and of their attorneys, and notices for the interferents disclosing the name and address of the said party and his attorney, shall be prepared by the Primary Examiner and forwarded to the Examiner of Interferences, who shall mail said notices and set a time of hearing on the question of the admission of the new party. If the Examiner of Interferences be of the opinion that the interference should be suspended and the new party added, he shall prescribe the terms for such suspension. The decision of the Examiner of Interferences as to the addition of a party shall be final.

If a reference be found, the interference may be suspended at the request of the Primary Examiner until the final determination of the pertinency and effect of the reference and the interference shall then be dissolved or continued as the result of such determination. The consideration of such reference shall be *inter partes*.

Women Inventors.

The patent office has compiled a list of women inventors—published in one original volume including list granted from 1790 to July 1, 1888 and two appendix volumes. The INVENTIVE AGE will forward the three volumes to any address for \$1.

Changes in Classification.

The following transfers of work are hereby directed:

Class 120, Stationery, from Division V to Division II.
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Powers of Attorney.

Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Disbarred Attorneys.

Any person who has been disbarred from practice before the patent office by order of the commissioner will be denied access to the files of the office, either in his own capacity or as the representative of any other person or firm.

B. & O. Summer Books.

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Copies can be had by applying to various B. & O. agents or by sending 10 cents in stamps to cover postage to J. M. Schryver, General Passenger Agent, Baltimore, Md.

Views of a Member of P. L. Association.

Mr. T. H. Alexander has written a letter, of which the following is a copy, to the Patent Law Association, of Washington, D. C., of which he is a member.

F. Benjamin, Esq.,
Secretary Patent Law Association, City.

DEAR SIR:—I am in receipt of a printed copy of the report submitted by the Committee on Ethics to the Patent Law Association at its last meeting, the avowed object of which is "to raise the standard of efficiency of patent attorneys." Prior to becoming a member of this organization, I understood that this was to be one of its primary and essential purposes. It was, so to speak, to form the chief corner stone upon which the whole fabric of the organization was to be built, and which, if ever removed or undermined, a well merited collapse would follow. I believed that a courageous and united effort would be made to purge the stomach of our profession of the nauseating bile which has for several years been accumulating and of late so increased that it even threatens the healthful action of our whole patent system. I believe that, as an organization, we should not only inoculate, in order to prevent a spread of the contagion now in existence, but that we should also, in our collective capacity, wage if possible an exterminating war against those who are already incurably affected.

Thus believing, I cannot yield assent to two suggestions made by the Committee on Ethics, such as embodied in the following extracts from its report:

"1st. Such injuries to the name and fame of reputable attorneys, and to patent practice generally as may be occasioned by unfair or improper practices of unscrupulous attorneys should, it is believed, be met by attacks made by individuals rather than by the united and organized efforts of the Patent Law Association. Disreputable practices, and practitioners adopting the same, will doubtless sink to a well-merited obscurity. Moreover, attacks of this character made by an association, would be immediately attributed to jealousy finding vent in trades-unionism, and would be met with strong and perhaps successful opposition.

2nd. It is believed, therefore, to be the better practice to provide for the correction of these abuses, not by directly attacking the present perpetrators of such abuses, for they will soon kill themselves off, but by providing against their recurrence in the future."

The suggestion that we should by individual attack, rather than by an organized effort, seek to remedy the abuses that have crept into our profession, finds its analogy in a body of men enlisted for a special purpose, and when they find themselves in presence of the enemy, are advised by their officers to disband and fight, every man on his own hook, for fear that if they collectively defend their position, it would be attributed to "jealousy finding vent in trades-unionism." As individuals we would exert but little or no influence in correcting the abuses we complain of while, as an organized body, I believe the co-operation of the proper officials could be secured, both to stop and prevent these unprofessional methods. Nor can I subscribe to the suggestions that the present perpetrators of abuses should be exempt from the exercise of all corrective measures, and that we should only endeavor to prevent any one else following their example. This recommendation seems to me much like that of asking immunity from punishment for all present violators of the law on the ground that they are already engaged in their nefarious practices, but taking strong measures against those who might seek to make a living by similar methods. I shall cordially endorse all that can be done to raise the standard and efficiency of our profession, but I believe that when there are evils to be corrected, such for instance as prostituting the patent practice to the low plane of a "prize gift enterprise concern," an organized, rather than an individual effort should be made to extirpate them "root and branch." I think it should be clearly understood that such at least is one of the objects and intentions of our association.

As I shall not, in all probability, be present at the next meeting, I have deemed it best to set forth by letter my objections to the report with regard to the particulars herein referred to.

Truly yours, etc.,
T. H. ALEXANDER.

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It is reported that F. A. Lehman has preferred charges against John Wedderburn & Co., to the commissioner of patents alleging unprofessional practices in the conduct of his patent business.

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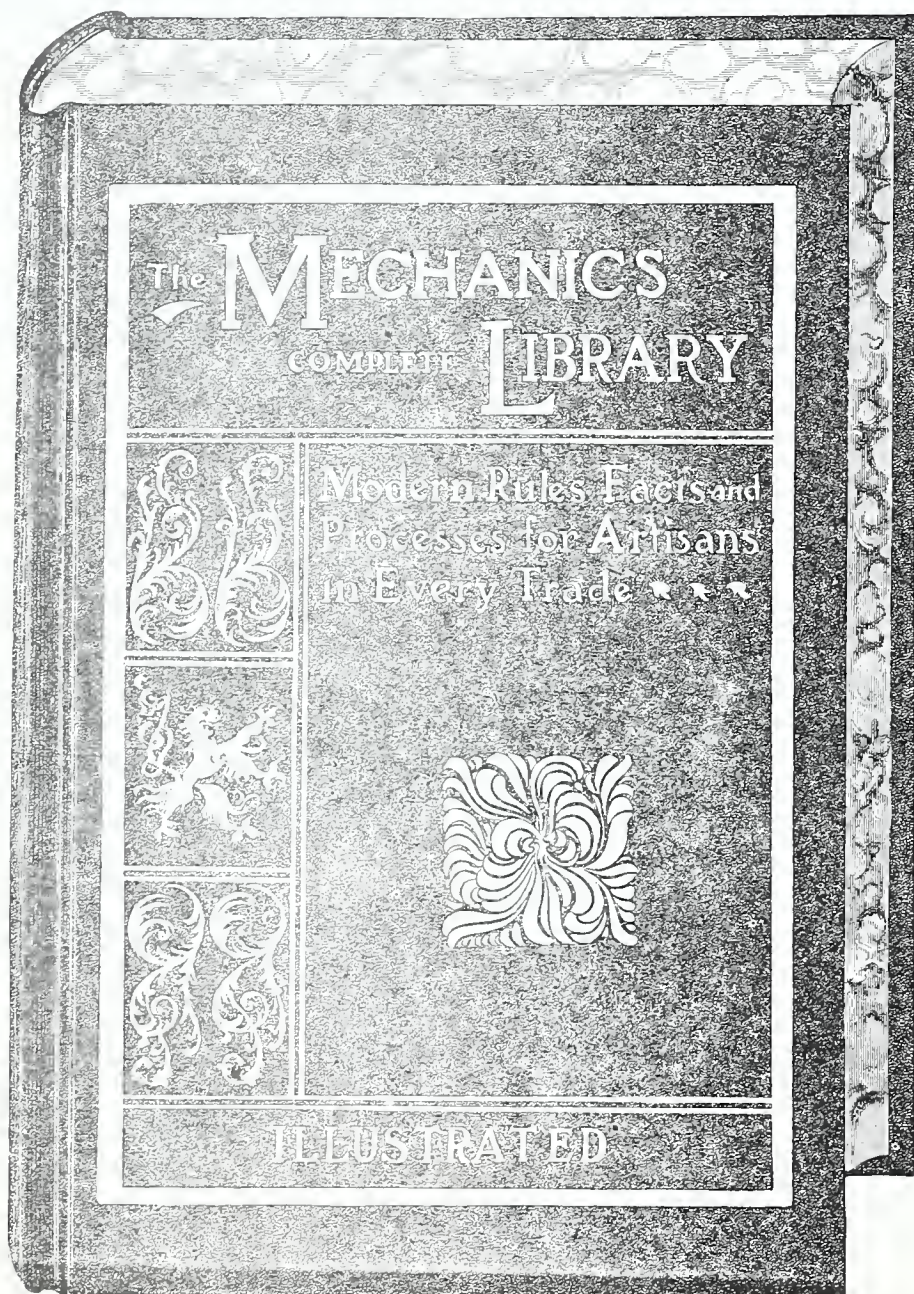
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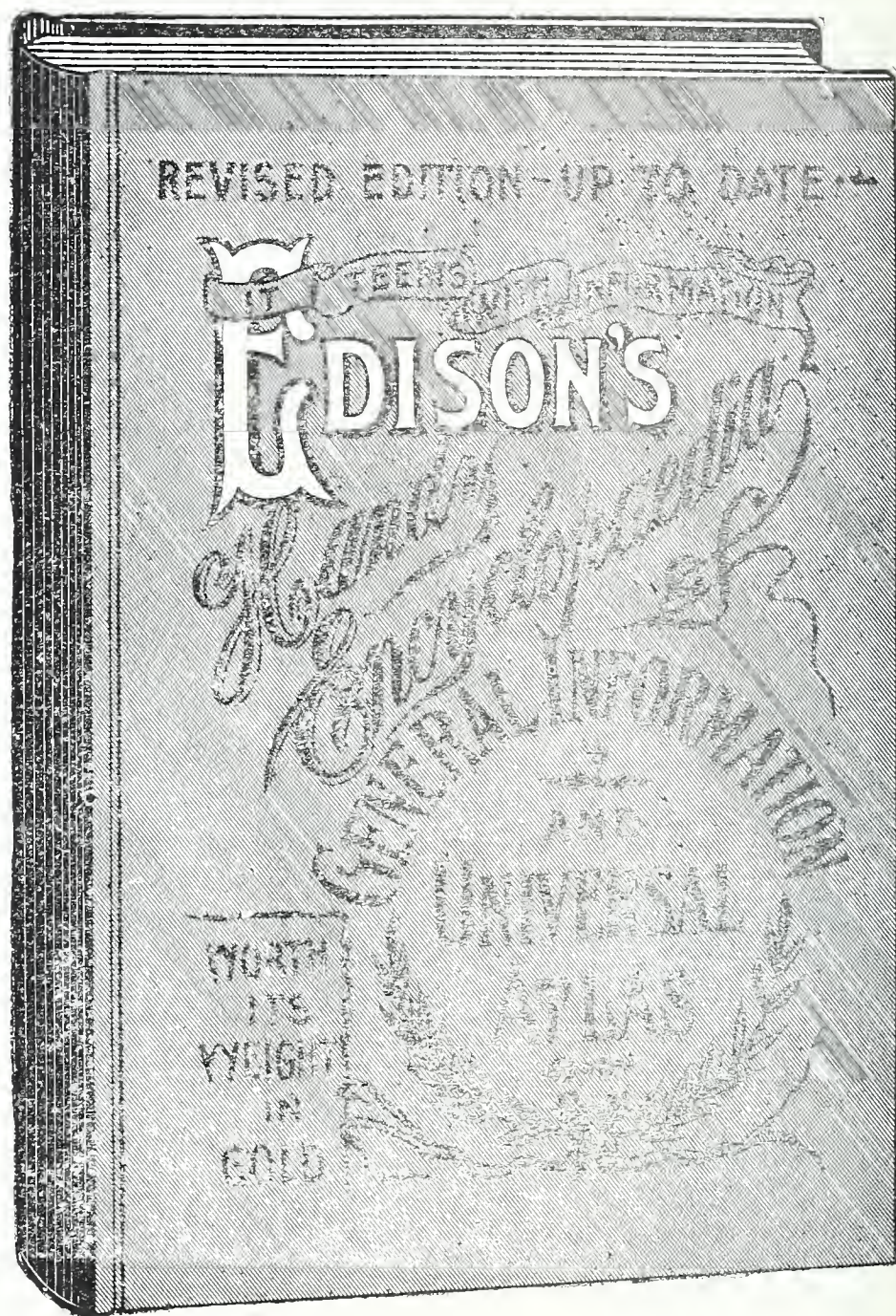
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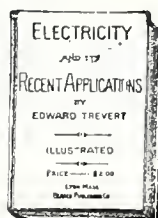
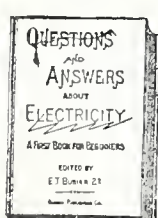
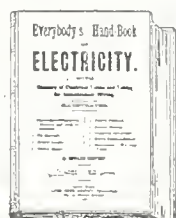
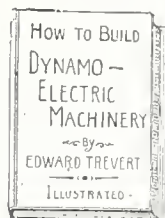
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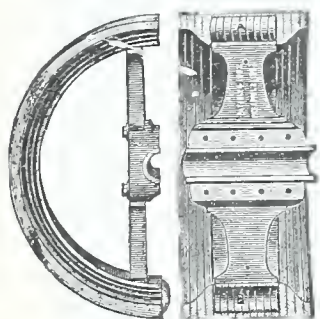
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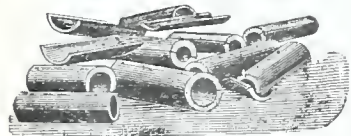
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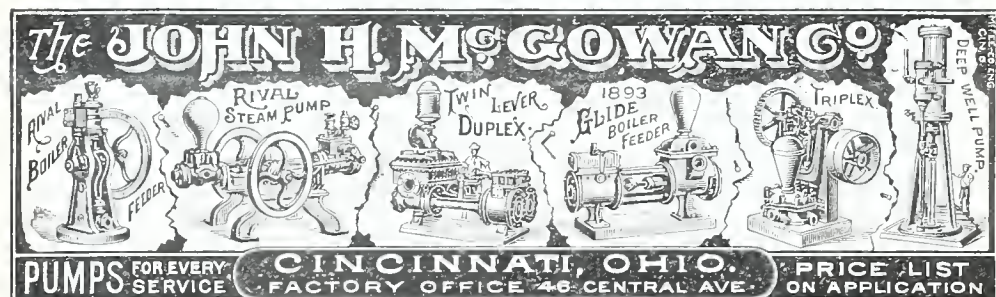
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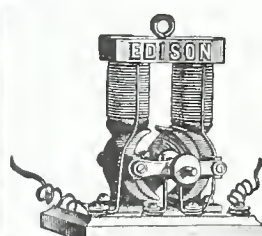
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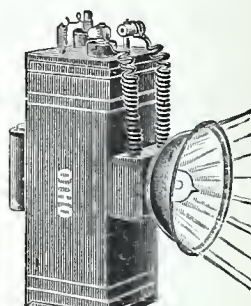
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No. 7.

WASHINGTON, D. C., JULY, 1897.

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BUSINESS METHODS OF WEDDERBURN

Report of the Committee on Which the Commissioner of Patents Cites the Patent Firm of Wedderburn & Co. to Show Cause Why it Should Not be Disbarred.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 3, 1897.

HON. BENJAMIN BUTTERWORTH,
COMMISSIONER OF PATENTS,

SIR:

The committee to which you referred the question of the practice of certain attorneys before the Patent Office, herewith submits its report together with the exhibits relating thereto. Accompanying this report is a list of applicants whose cases are completely anticipated and if it is found advisable to have the Post Office Department investigate these cases, a list of questions to be propounded is annexed.

Respectfully,

LOUIS W. MAXON,
GEO. R. SIMPSON,
F. W. WINTER.

Committee.

An investigation of the general practice of attorneys before the patent office discloses the following:

The general principle of law applicable to the duties of an attorney to his clients is stated in Bouvier's Law Dictionary, under the heading of "Attorney," to be as follows:

"The principal duties of an attorney are to be true to the court and to his client; to manage the business of his client with care, skill, and integrity; to keep his client informed as to the state of his business; to keep his secrets confided to him as such."

As to the duties and liabilities of an agent to his principal the same authority under the heading of "Agent," states as follows:

"The degree of neglect which will make the agent responsible for damages varies according to the nature of the business and the relation in which he stands to his principal. The rule of the common law is, that where a person holds himself out as of a certain business, trade, or profession, and undertakes, whether gratuitously or otherwise, to perform an act which relates to his particular employment, an omission of the skill which belongs to his situation or profession is imputable to him as a fraud upon his employer. But where his employment does not necessarily imply skill in the business he has undertaken, and he is to have no compensation for what he does, he will not be liable to an action if he act *bona fide* and to the best of his ability."

Again under the same heading the following appears:

"He may forfeit his right to commissions by gross unskillfulness, by gross negligence, or gross misconduct, in the course of his agency."

An attorney in an application for a patent acts under a special power of attorney and may be termed an attorney in fact. As an attorney he is bound by the common law relating to agency. His position is also analogous to that of an attorney-at-law and the patent office is a judicial tribunal to a certain extent corresponding to the courts, consequently the common law duties of an attorney to his client and to the court are binding upon him.

The foregoing principles of law suggest the following lines of inquiry relating to the practice of attorneys before the patent office:

1. Has the attorney been honest in his relations

with the office and his client.

2. Has there been such a lack of skill which belongs to the profession of a patent attorney as to impute to him a fraud upon his client.

3. Has the attorney been grossly negligent in the performance of his duties.

4. Has there been gross misconduct on the part of the attorney. The most common question of gross misconduct that arises is that of fraud on the part of the attorney.

Fraud is defined in Bouvier's Law Dictionary as follows:

"Actual or positive fraud includes cases of the intentional and successful employment of any cunning, deception, or artifice, used to circumvent, cheat or deceive another.

(Note) For instance, the misrepresentation by word or deed of material facts, by which one exercising reasonable discretion and confidence is misled to his injury, whether the misrepresentation was known to be false or only not known to be true, or even if made altogether innocently; the suppression of material facts which one party is legally or equitably bound to disclose to another."

Legal or constructive fraud by the same authority includes:

"Cases arising from some peculiar confidential or fiduciary relation between the parties, where advantage is taken of that relation by the person in whom the trust or confidence is reposed, or by third persons."

"What constitutes a case of fraud in the view of courts of equity, it would be difficult to specify. It is, indeed, part of the equity doctrine of fraud not to define it, not to lay down any rule as to the nature of it, lest the craft of men should find ways of committing fraud which might escape the limits of such a rule or definition. It includes all acts, omissions, or concealments which involve a breach of legal or equitable duty, trust or confidence justly reposed, and which are injurious to another, or by which an undue and unconscientious advantage is taken of another."

"In criminal law without the express provision of any statute, all deceitful practices in defrauding or endeavoring to defraud another of his known right, by means of some artful device, contrary to the plain rules of common honesty, are condemned by the common law and punishable according to the heinousness of the offense."

An investigation of the various documents relating to the practice of John Wedderburn, or John Wedderburn & Co., discloses the following

METHOD OF ADVERTISING:

The advertisements all appear in the firm name of John Wedderburn & Co., none in the name of John Wedderburn. The following appears to be a standard item, this clipping being taken from the Evening Star, Washington, D. C., for April 28, 1897. Similar items appear in numerous papers published in all parts of the country:

WANTED—AN IDEA.—Who can think of some simple thing to patent? Protect your ideas, they may bring you wealth. See JOHN WEDDERBURN & CO., Patent Attorneys, 618 F st. N. W., and get their \$1,800 prize offer and list of inventions

The general tone of the advertisements of John Wedderburn & Co., is to direct the attention of the public to the large fortunes to be realized from patenting bright ideas, thereby stimulating the people at large to make inventions.

Especially stress is laid upon the fact that it is the simple devices of every day life that are the most profitable when patented, and from time to time long lists of inventions that are wanted are published. See National Recorder for June 15, 1895; July 18, 1896; Nov. 28, 1896, and Feb. 13, 1897, and pamphlet "One Thousand Inventions Wanted."

The National Recorder of Washington, D. C., appears to be the principal advertising sheet of John Wedderburn & Co., and in fact that appears to be its principal function. It admits of little doubt that the paper is practically owned and controlled by John Wedderburn. In the papers in the case of Silas C. Purdy, copies annexed hereunto, is an undated letter from the National Recorder calling for a photograph of said Purdy, a sketch of his life and five dollars, and under date of June 3, 1896 the receipt of the photograph, sketch and money is acknowledged by John Wedderburn & Co. The affidavit of J. G. Tabler, copy hereunto annexed, states that as paymaster for John Wedderburn & Co., he was instructed to include on the same rolls the employees of both John Wedderburn & Co., and of The National Recorder; that said employees were all paid by check signed by John Wedderburn & Co.; and that the mail for the National Recorder was delivered to John Wedderburn in his private office and opened by him. The affidavit of Harry I. Bernhard, copy hereunto annexed, also shows that the National Recorder is controlled by John Wedderburn or John Wedderburn & Co. These two, the attorney and publication, mutually recommend each other to inventors for the furtherance of the business aims of each, apparently as separate firms, while in reality they constitute a single business controlled by a single person.

To further stimulate the inventive faculties of the public, prizes and medals are offered as a reward for meritorious inventions. The circular announcing these prizes is headed "Eighteen Hundred Dollars Given Away." Whereas in fact there is a monthly prize of \$150, the \$1800 being the aggregate of prizes for one year. A copy of the circular is annexed hereunto. The heading of this circular as well as the reference to the \$1800 prize in the "Idea Wanted" advertisement heretofore quoted, is calculated to give the impression that a single prize of \$1800 is offered. This impression was apparently left on the mind of J. P. Donn of Canon City, Colorado, who states in letter, copy annexed, that he (Donn) "told him (Wedderburn) to enter my name for a chance for his \$1800 prize." This monthly cash prize and the silver medals were advertised to be awarded by a board of well known patent attorneys of the National Capital. See National Recorder for June 15, 1895, page 2, column 1. No such board was ever appointed, but instead the medals were sent out by a typewriter in the office of John Wedderburn & Co. See affidavit of J. G. Tabler, copy annexed. Recently, however, the award of the money prize appears to have been made by a board consisting of two well known public men and three prominent business men of Washington, D. C. See Washington Post of March 7, 1897 and April 23, 1897, clippings annexed.

Regarding this prize contest the following appeared in the National Recorder of Feb. 8, 1896, page 2, copy in General Post Office Department:

"The unanimous verdict of the whole American people seems to be that no more public-spirited competition was ever organized than the Wedderburn Prize Patent Contests. Though it is only a few months since these competitions, with their handsome award of \$150, for the best and simplest invention submitted to John Wedderburn & Co., and the Roll of Honor containing the names of those who have devised meritorious inventions, were instituted, there is hardly a land under the sun where they are not now well known, and the monthly contests have been marked by the generous rivalry of inventors representing every state in the Union and many from far across the sea.

In no case does the invention become the property of the Wedderburn Co. The prize winner, as well as all other competitors, is still the owner of his invention, and armed with the prestige which he has won as the successful competitor in these now notable contests, he can confidently seek either a manufacturer, a purchaser or a partner, pointing with confidence to the fact that his device has already been chosen by a competent board of experts from among the large number entered in these monthly competitions for an award that amounts to a certificate of the highest merit."

(Continued on page 100.)

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WASHINGTON, D. C., JULY, 1897.

THE American bicycle has become so popular in Germany that an effort is being made by the Bund of German Industries to secure higher duties on the imported American product.

AN American has secured the contract for the first steel frame sky scraper to be erected in Japan. It is believed that this style of building architecture will become popular in a country frequently shaken by seismic disturbances.

THE large cables of the famous Niagara Falls suspension bridge are being taken down, strand by strand, and cut into 30-foot lengths. The Hamilton Iron Works will work it up into nails. This is indeed a curious transformation of an old landmark.

THE prohibition of child labor in factories and industrial pursuits in the state of Illinois, is one of the acts of the recent legislature that will meet with hearty approval everywhere. It places that state in the front rank of progressive industrial communities.

TEN years ago this month the first electric railway was put into operation—that is the first that was commercially satisfactory—at Richmond, Va. It is now so universal and extensive it seems almost incredible that its history does not extend over a greater period.

NICOLA TESLA expects, through the use of his machines, not only to send messages to any part of the earth without the use of wires but to transmit power as well. Educated to expect much from Mr. Tesla, the public will hardly accept this prophesy without some doubt.

THE French are far ahead of other nations in the use of automobile cabs. It is estimated that over 2,000 of various designs are now in use in Paris—500 having been added this month. The experimental stage has been passed, and the popularity of the horseless carriage is assured.

MACHINES for the transmission of messages long distances without the use of wires or other connection save “mother earth” are now reported to be a success by no less an authority than Nikola Tesla. He claims to have already succeeded in sending signals a distance of over twenty miles. Great as this achievement may be it will hardly cause surprise, so accustomed are the people of this age to the unfolding great secrets and the discovery of gigantic scientific phenomena.

THE law prohibiting the employment of convicts in the state of New York in competition with free labor has worked admirably and the predicted

demoralizing effect of idleness has not materialized. It has been shown that the death and sick rate and percentage of insane persons was much greater when the heartless contractor had charge of the convicts than under the present humane system which does not interfere or compete with honest toil.

THE great jubilee in honor of England's queen emphasizes, or rather brings to mind the wonderful advancement in science and invention during the three score years of Victoria's successful reign. A correspondent who viewed the recent great navel display on the waters of the Solent, retrospectively says that when Victoria ascended the throne the “walls of England” were wooden. And what was true of the conditions in England applies with similar and equal force to other nations. There were no steel battleships, no iron cruisers, no triple expansion engines, no steam in use in war vessels, no search lights, no electricity in the service of man, no great or quick-firing guns, no torpedoes. The lights aboard were still lit with flint and steel and were no more brilliant than whale oil could make them; the guns were still fired with a slow match; the three-decker was still the model of all that was worthy in naval architecture, and tonnage was reckoned within such modest limits that a vessel of more than 3,000 was looked upon as a marine wonder. Never before has a sovereign seen such changes in the bulwarks of empire as have fallen to the lot of Queen Victoria. At Spithead were assembled the latest triumphs of the industrial revolution, triumphs of workers in iron and steel and metals, triumphs of inventors, triumphs of chemists and the giants of the laboratory, triumphs of the ship builder, the engineer and the artisan, triumphs of the genius of a great nation.

SINCE the circulation of the June issue, the INVENTIVE AGE has received hundreds of letters of enquiry regarding the practices of patent attorneys and patent agents and the experiences of some of the unfortunate ones who have fallen into the hands of the patent shark are extremely pathetic. It is astonishing how credulous and simple-minded some inventors become upon receipt of the honeyed letters and tempting propositions from patent agents. And usually those who can the least afford it are the ones who bite the shark's bait. One case, particularly sad, has come to the attention of the AGE, wherein a poor inventor was induced to part with \$105 all told; and to raise this sum necessitated the hypothecating of all his property. But the “great value” of his two inventions had been dwelt upon by the patent agent and as “all would come back soon with interest” he was impelled to run the risk. He was told that his inventions had “great merit” But the inventor is still looking for the patent that never came. The examiners in the patent office found that both inventions had long ago been anticipated. It is to correct such abuses as this, that a change in the patent office regulations is contemplated and urged by the reputable patent attorneys of the country.

WE acknowledge the receipt of a copy of “Manual on Patented Inventions,” by Martin L. Ware, of Utica, New York. It is a most interesting treatise on what to do and what not to do to insure success to the inventor. It also contains a summary of the patent laws of Canada and foreign countries and comments on the practices of that grand army of parasites on inventors who advertise themselves as patent agents or brokers. The author of this little work offers about the most substantial advice to inventors in relation to patents and the promotion and sale thereof of any writer upon the subject, and liberal quotations from articles appearing from time to time in the columns of the INVENTIVE AGE indicates a high appreciation of this journal's efforts in behalf of the American inventor.

A BREAK has come in the price of high grade bicycles, the Pope Manufacturing Company taking the lead—reducing the price of the famous, “Columbia” from \$100 to \$75. It is likely other firms will

follow and a general reduction in the price of cycles amounting to 20 to 30 per cent may be looked for. The perfection of automatic machinery for making many of the parts of the modern “bike” accounts in a measure for the reduction, but a surplus of wheels in the market is the main cause.

THE National Association of Manufacturers has perfected plans for the establishment of an exhibition warehouse for the display of samples of American manufactured goods in the city of Caracas, Venezuela. Mr. Rudolf Rolge, who has just returned from Venezuela, where he spent several months in making preliminary arrangements, is now engaged in the organization of this enterprise, and a considerable portion of the space has already been engaged by prominent manufacturers. It is the purpose of the association to establish similar institutions in other important foreign trade centers in South America and the Orient. The charges for space are reasonable and the benefits to the American manufacturer must be great.

THE Commissioner of Patents has given counsel for John Wedderburn & Co., until July 21, in which to complete his presentation of the defense in the matter of the charges of misconduct against said firm. While it is not customary for the Patent Office to give so much time to persons against whom charges are brought, the professional engagements of Judge Wilson, Wedderburn's counsel, seemed to prevent the possibility of his presenting his argument earlier than the date named. In the meantime however Wedderburn is permitted to continue the practices which are complained of by the Commissioner, and to so arrange his business that he will suffer no pecuniary loss in case of final disbarment.

THE wonderful increase in the export trade of Germany and the rapid growth of the various manufacturing industries has been commented upon by all writers on industrial matters and formed the topic for many consular reports. In no line has the progress been more marked than in the manufacture of needles. Last year the Germans exported 2,800,000 pounds of these small but indispensable articles, against 1,800,000 pounds in 1895. The best market for these goods has been in the Orient, China taking over 60 per cent of the whole export of 1896.

THE INVENTIVE AGE gives, in this issue, an impartial review of the Wedderburn case—the findings of the committee appointed by the Commissioner of Patents to investigate the methods of the firm and the answer of John Wedderburn and John Wedderburn & Co. thereto. The next issue will contain further information regarding this celebrated case. The subscription price of the AGE is but \$1 for a whole year.

WORK on construction of the buildings for the forthcoming Trans-Mississippi Exposition to be held in Omaha, will be commenced at an early day. The five main buildings will cost about \$100,000 each.

THE W. J. Johnston Company, Limited, publishers of the Electrical World, New York, will dissolve, simply as a matter of business convenience. The corporation has been very successful.

WHILE you are thinking about it send \$1 for the INVENTIVE AGE one year.

With the July number “Brick” enters upon its fourth year of existence, easily ranking all other technical journals of its class. It is astonishing how much of interest may be written about brick—as exemplified in this publication

In a recently patented shaving brush a flexible bulb is placed inside an aperture in the handle to be filled with water or liquid soap, with a tube extending out to the bristles to wet them for use.

To keep the tongues of shoes from slipping down while on the wearers' feet, eyelets are placed in the upper ends through which the lacings pass before they are tied.

The Recent Revision of the Rules of Practice.

By WALTER F. ROGERS.

The rules of practice in the United States patent office were revised June 18, 1897, and the new edition is now out with the familiar old color and up to a certain point the familiar old numbers and without the famous "six months" and "five years" rules. The fifteenth revised edition is a restoration of the revised edition of April 1, 1892, except that rules 181-194, inclusive, relating to extensions, and rules 223 and 228 have been omitted. A number of recent amendments have been accepted and several amendments appear for the first time.

The fourteenth revised edition was the *magnus opus* of ex-Commissioner Seymour. By that edition the rules were substantially re-written, reduced in number to 88, and rearranged, and the forms revised throughout.

That edition was issued February 9, 1897, near the end of Mr. Seymour's term and about three weeks before the incoming of the new administration.

Before that edition was published the purposes of the revisor became known to the Washington Patent Law Association. The association appreciating the gravity of the situation appointed a committee which procured a copy of the proposed changes and having carefully considered the matter made a report to the association strongly adverse to any radical revision. The Association thereupon requested Mr. Seymour to delay the issuance of the new edition and finally urged him to retain as much of the old form as possible making only such changes as were necessary. The Association argued that it would be better even to keep the old numbers and certainly wiser to retain the substance of what was good rather than to make so radical a revision of a set of rules which had grown through many years of practice.

It was also suggested that the revision be submitted to the incoming commissioner for consideration, as he would have the task of interpreting the new rules, and of disposing of the mass of petitions and appeals any such change must occasion.

It was admitted that many minor amendments and some radical ones might be made with advantage, and to meet these requirements the committee of the association went over the rules carefully and finally presented a report which was directed to be forwarded to Mr. Seymour. The report accepted many of Mr. Seymour's suggestions, and recommended other changes; but requested that the rules be amended upon the basis of the thirteenth edition, so that there should not be a violent transition.

In the midst of the discussion the revision of Feb. 9, 1897 was printed in the Gazette.

Mr. Seymour's successor was the Hon. Benjamin Butterworth, a former commissioner, and a man of wide experience in the practice of patent law.

He had no sooner taken his seat than he was flooded with the anticipated appeals and petitions and every week saw some change in the rules.

The association renewed its recommendations to the present commissioner, who went into the whole subject with Assistant Commissioner Greely. The result was the abolition of the edition of February 9, 1897, and the return to the thirteenth edition with certain necessary amendments.

One of the most radical changes made by the new rules of June 18, 1897, is the omission of the famous "six months" and "five years" rules, the rules which required amendment within six months under penalty of final action by the examiner set the limit of appeal at six months and made a five years prosecution a "statutory bar."

It was the general opinion among patent lawyers that there was no legal foundation for rejecting an application because of delay in its prosecution, and the decision of the supreme court of the United States in the Microphone case left this rule without any support.

The six months rules (65 and 134, or 28 and 63 of Feb. 9, 1897) on the contrary were generally thought to have a fair foundation in the statutes and the trend of decisions, such as *Hein v. Pungs*, 770 G., 1600, by the court of appeals of the District of Columbia, had the effect of strengthening these rules.

There can be no question but that some means was needed to urge the prosecution of the occasional cases, few in proportion and yet large in the aggregate, which were permitted to encumber the files of the office. The rules seem to have been of some advantage but since the adoption by congress of the public act No. 133, prepared by the association, which makes one year the term of abandonment, the rules are not as important as they might have been under the two years statute. This fact coupled with the additional fact that the rules were not firmly fixed on a precise statute and the fact that in the great mass of work before the office no decided advantage had appeared from the operation of the rules led to the omission of the rules from the new set.

Mr. Seymour's rule 64, (25 of Feb. 9, 1897) practi-

cally promulgated in 1894, has been retained with an amendment requiring corrections to be made before appeal. This is the rule which wisely provides for treating the merits throughout and insisting upon matters of form only at the last.

Rule 116 goes back to the old ante-Simonds days. This rule now fixes the burden of proof upon him who files his complete application last. There is perhaps no single rule which has been the subject of more discussion or more diverse opinions than this rule.

In its 1887 form, as rule 111, it was as it is now. Mr. Simonds had before him the case of *Van De Poele v. Daft*, in which one of the parties had made a divisional application which was not properly such. The mistake was that of the Primary Examiner, and the remedy was clear; but Mr. Simonds made this original departure in a matter of substance the reason for a change in fixing the burden of proof. He who last claimed was to have the burden of proof upon him. The idea was that no one should be permitted to take advantage of a claim he was not entitled to and that the presumption must be that because he did not claim originally he was not ex-originally the inventor. There never was, perhaps, in all the discussion of the rules a proposition based so entirely upon a theory, and so entirely neglectful of the primary features of an interference, and of the weight of *prima facie* evidence attaching to a complete description and drawing. Mr. Seymour for over three years maintained Mr. Simonds's views, and went even further in *Edison v. Ball* and other decisions; but to the surprise of everyone and notwithstanding his numerous decisions, he, having changed his mind, courageously changed the rule to its present form in his February, 1897 revision. Since it is simply a rule of procedure it is to be hoped that after all its vicissitudes and all the briefs and arguments that have been occasioned by its amendment it ought now, whatever view anyone may take of it, stand for all time in its original form.

Since *Duncan v. Westlinghouse*, 660 G., 1005, it has been the settled rule to hear all questions *inter partes* where more than one party is in any way involved in the result. This now attaches by the rules to all motions for dissolution and in effect to the consideration of new references and the addition of new parties. In the latter the Examiner of Interferences is given a wider authority than before and his decision as to the time of adding a new party, in rule 129, is made final.

In the matter of taking testimony, in rule 156, a welcome clause has been added to the effect that "either party may require that testimony may be taken stenographically, unless for sufficient cause the commissioner shall direct otherwise." The word "stenographically" will perhaps be taken with a grain of salt. It is the general custom now to have the testimony taken directly by a typewriter. With an expert operator and with the ordinary witness but little time is lost and the method is accompanied with the great advantage of having constantly ready all the testimony that has been taken in such form that the counsel can read it and in such form that there is no room for discussion over the mistakes of the stenographer. Whatever mistakes are made can at once be corrected.

There is a new provision in the matter of briefs. By rule 163 in contested cases briefs must be filed three days before the hearing, while in appeals in interference cases, and presumably in all contested cases the appellant is required to file five days before the hearing, and the appellee one day. The abolished rule of February 1897, gave this advantage to the senior party.

It has been thought, upon consideration, that there is nothing in the relation of senior and junior parties that calls for this advantage, and the rule is an improvement. It still lacks effectiveness in that it does not provide for serving a brief by the appellant upon the appellee five days before the hearing and by the appellant one day before the hearing.

All the rules in regard to proceedings in extensions have been stricken out as practically obsolete.

The former rule 221 of 1892, now rule 207, is designed to remedy a peculiar omission in the former rules. A recent case in the patent office developed through a motion in an interference cause that an applicant had bought a certificate of deposit and kept it in his pocket for three years before sending it on to the office. His application had been duly marked "forfeited" and then stamped "abandoned," but when he forwarded his certificate of deposit it was decided that the three years' interval did not affect his rights. He had paid the allowance fee within the designated time and no time was set by the rules in which it should be transmitted to the office.

One of the most striking features of the changes in the rules is that made in rule 17 regarding attorneys.

This rule is based upon the recommendation of The Washington Patent Law Association which after elaborate consideration and discussion forwarded a letter to Commissioner Butterworth dealing with the question of admission and disbarment of attorneys. The rule which is in substantially the language of the Association states that:

An applicant may be represented by—

(a) Any person who at the date of approval of this

rule is in good standing as a practitioner before the patent office;

(b) Any attorney at law in good standing in any court of record in the United States or in any of the States or Territories thereof;

(c) Any person of good moral character who shall show to the satisfaction of the commissioner of patents that he is duly qualified to act as attorney in the prosecution of cases before the office.

The rules do not include the recommendation of the association as to the precise definition of the term "gross misconduct" of the statute. It is understood that that feature is still under consideration and there is no doubt but that the present rule is intended as an entering wedge for the adoption of a comprehensive rule governing practice before the office. Certain proceedings now on in the office have given point to the recommendations of the association.

The new law which is to take effect January 1, 1898, will require certain changes in the present rules. There are still some points in which the rules might be amended to advantage; but the profession has nothing but congratulations for the careful conservative and wise manner in which this subject has been treated by the present administration.

A long familiarity with a set of rules, the great convenience of having all the mass of notes and the experience of past practice apply notwithstanding the changes from time to time, and the benefits of having a set of rules fitting into the experience and system of the many rather than a set presenting the theories of the few; these and other considerations make the return to the old rules, the old numbers, and the old practice a welcome reversal.

Sixty Years of American Progress.

One of the grandest and most significant pageants of history—ancient or modern—has just passed out of sight. The whole world has looked on and wondered, and no man not blind to what is sublime in history and conspicuous in its developments can honestly begrudge the honor done to an aged sovereign who in her personal character is above reproach and as a woman sitting on the throne of the greatest of empires has won the respect of her enemies, and the honest regards of millions who under other flags and other political systems, have no allegiance but that of loyalty to what is pure, virtuous and womanly. So much for a noble lady and a good woman. Much has been said of the progress made during the sixty years just closed. It has been a golden era in the history of education, enterprise, invention, and all that pertains to civilization. By universal consent it is known as the Victorian era. As such it will remain in the Pantheon of History. But while not detracting from the impressiveness of the occasion, nor begrudging whatever of fame or honor may rightfully belong to it, a retrospect of what has been accomplished under the democracy of the Western hemisphere ought to be a matter both of pride and gratitude to every citizen of the United States. Sixty years ago there were but twenty-five stars on the national flag. The roll call of population was but 14,963,000, and the wealth of the nation was placed at \$5,000,000,000. The total capital of the banks was \$290,722,091, and the amount of deposits \$127,397,185. The United States had but 11,767 post offices, and the total value of American manufactured products was less than five hundred millions. Our railway mileage was but 1497 miles, and west of the Mississippi spread a vast wilderness of solitudes, in which the bison divided territory with the savage and the pioneer. Today we have a panorama of cities and states, a broad, bright band girdling the hemisphere with steel rails and peopling it with orchards, fields, mills and homes. In literature and science, in invention and discovery, American genius has made its bright mark in these sixty years. We have given the world the telephone and telegraph, the submarine cable, the iron ship, and the electric car. In all things that go to the making up of a great nation with a proud leadership in civilization and destiny, the American people in these sixty years have risen to a pinnacle of greatness that commands the respect of the world. The triumphs of democracy with its throneless government are not a whit behind those of the crowned democracy on the other side. In giving credit to the latter, let us not forget the honor due to the other.—*Age of Steel*.

President McKinley has refused the French Telegraph Cable Company permission to land its lines on Cape Cod or any other part of the New England coast on the ground that similar requests made before by other companies for like privileges have been refused by the government.

When writing to advertisers please refer to the INVENTIVE AGE; it will operate to the mutual advantage of the reader and publisher.

BUSINESS METHODS OF WEDDERBURN.

(Continued from first page.)

The award of the cash prize and silver medals appears to be made regardless of any action on the case by the Patent Office and before it has determined whether or not there is any patentable novelty in the case. The award is often made before the case is filed in the Patent Office and a favorable award is frequently made in a case that contains not a scintilla of patentability. In the case of J. Edgar Tuttle, papers filed by Wm. Small, a silver medal was awarded prior to filing the application, and no patentability is found in the case. The facts are the same in the case of Joe Steadman, (envelope case), see letter of Oct. 28, 1896, copy annexed. In the case of Silas Purdy, a medal was awarded soon after filing the application and it appears that no patentability exists in the case. See letters of May 5, 1896, and May 21, 1896, copies annexed. The practice of awarding prizes and medals regardless of the patentability of the honored device, appears to be the rule and not the exception.

The advertisements of John Wedderburn & Co., and of the National Recorder, lay special stress upon the ability of their employees, the thoroughness of the searches made by them, and, in general, the high grade of service rendered their clients. The following extracts are given as illustrations:

"The search which the Recorder will make for you will be conducted by the highest class experts in the business, and by a special arrangement with Messrs. John Wedderburn & Co., your device will be entered in the regular monthly competition of that firm for the handsome prize of \$150 and the beautiful silver trophies which this enterprising firm is offering to stimulate inventive genius." (The National Recorder of Sept. 2, 1896, p. 3.)

"We have a corps of patent experts each skilled in his particular branch; every case receives the best possible attention and is promptly handled and skillfully prosecuted. We give the highest grade of service. Our aim is not only to secure patents, but broad patents, patents which have commercial value. Our high reputation and commercial prosperity depend solely on the character of our work." (Wedderburn & Co.'s pamphlet "How to Get a Patent," page 8, exhibit in complaint of Laura A. Peck.)

"The report by John Wedderburn & Co., upon each search will constitute a certificate of patentability, and will be the best possible evidence with which to secure a backer or partner, or purchaser of an invention as yet in embryo. One of these certificates will add hundreds and even thousands of dollars to the value of an invention yet in its early stages, and whether a man desires to dispose of the patent or keep it himself, he cannot do a wiser thing than ascertain its patentability at the very earliest moment." (National Recorder, Feb. 8, 1896, page 6, Column 6, and Leaflet "A New Departure," copy attached.)

Reference to these laudatory extracts will be hereafter made in connection with the remarks as to the method of business and character of work of said firm.

METHOD OF DOING BUSINESS.

All powers of attorney, with two exceptions, are in the name of John Wedderburn, the exceptions being in the name of Wedderburn & Co. In the period between March 3, 1895 and March 3, 1897, John Wedderburn filed in the patent office, 3763 applications. Of these the examiners gave as their opinion that 1812 contain no patentable subject-matter. Within the same period said John Wedderburn filed numerous groups of duplicate applications, hereinafter specifically referred to.

The general scheme followed by said Wedderburn & Co., in conducting business with their clients appears clearly from the cases of Silas C. Purdy, Otto Rucktaeschel, and J. Edgar Tuttle, papers herewith attached. All cases examined conformed quite closely to this scheme in its main features, which are as follows: The inventor answering one of Wedderburn & Co.'s, advertisements usually sends a model or letter of inquiry. In reply a letter is sent by Wedderburn & Co., which varies somewhat in detail to suit a particular case, but the general tone of which has much of sameness in the many cases examined. Fair samples of these first letters are that of Otto Rucktaeschel, of April 27, 1896, that to Joe Steadman, of July 1, 1896, and that to Silas C. Purdy, of April 2, 1896. The main features of these first letters open to criticism, is the information that the client's invention "is certainly of a patentable nature," and that "the total cost of preparing, filing and prosecuting an application, is \$40." The first statement is made prior to any examination of the state of the art and the second statement leaves the impression upon the minds of those unfamiliar with patent office procedure that the \$40 covers the total cost of procuring a patent.

The wording of this part of the letter is very ingenious. Furthermore said Wedderburn actually receives \$50 before filing the application, \$5 preliminary examination fee, \$20 to cover first government fee of \$15, and \$5 the cost of one sheet of drawings, and \$25, his fee for preparing and prosecuting the case. See letters to Purdy, April 11, 1896, April 20, 1896, April 24, 1896, and May 5, 1896.

The final fee of \$20 was never mentioned in the earlier letters of any case examined.

If no response from the client is received to this first letter another letter is written. See undated letter to Rucktaeschel.

Upon receiving the fee for the preliminary search, a second letter is written the clients, fair samples

of which are letters to Tuttle, June 22, 1896, to Purdy, April 11, 1896, and to Rucktaeschel, June 13, 1896. In this second letter the clients are usually—not always—advised, that Wedderburn & Co., "have made a thorough examination of the records of the patent office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent." In each of two cases examined the client was advised that a certain patent cited was thought to anticipate the invention submitted, but it was suggested to him that he devise certain changes, as often in the experience of John Wedderburn & Co., clients had thus been enabled to secure valuable patents. See letter to Hawkins, March 18, 1897, La Shell, March 13, 1897, in general post office department. These second letters generally state that "there is no doubt that your invention is a very valuable one," etc., and that "as soon as the application is safely filed—and you are secure from anticipation by any other inventor, we will at once proceed to find a purchaser, should you desire us to sell the patent." The first statement is made in cases that are found to possess not a particle of patentable novelty, and the second statement is calculated to convey the idea that the mere filing of an application establishes the applicant's right to a patent. These second letters call for a remittance of \$20 "to cover the first government fee of \$15, and \$5, the cost of one sheet of official drawings."

Upon receiving the \$20, application papers are sent the client for execution, together with a third letter calling for a remittance of \$25 "the balance of fees due." See letter to Purdy of April 20 and 24, 1896, and to Tuttle, June 27, 1896. Upon receiving the \$25 a fourth letter is written acknowledging the same and stating that "the papers will be promptly filed," etc. At any stage subsequent to the third letter suggestions as to the sale of the invention or patent and recommendations that foreign patents be procured, are made. See letter to James Slater, Feb. 25, 1896, copy annexed. Also at some stage subsequent to the remittance of the \$5 preliminary examination fee the client is advised "that the board of awards has selected your invention for special merit, and your name will appear on our roll of honor," etc. A sterling silver medal whose design is regarded "as exceedingly artistic and effective" is sent accompanied by a U. S. Treasury certificate as to its standard fineness. See letters to Rucktaeschel, July 8, 1896, to Purdy, May 21, 1896, to Tuttle July 8, 1896. This letter is either accompanied by or closely followed by an undated circular letter of the National Recorder, a sample of which may be seen in the papers of each of the cases of Purdy, Tuttle and Rucktaeschel. This letter offers to publish the inventor's portrait, and a sketch of his life for \$5, and advises the advertisement of the invention for sale.

The general scheme of doing business disappears at about this stage and cases appear to be treated differently according to circumstances, as will appear from the specific cases following:

The record in the case of J. Edgar Tuttle, clearly discloses the general scheme of doing business practiced by John Wedderburn & Co., and also discloses several facts that are worthy of special notice. The accompanying exhibit in said case may be digested as follows:

- June 22, 1896. Letter from John Wedderburn & Co. to Tuttle. Thorough examination made and no anticipatory reference discovered.
- June 27, 1896. Letter from John Wedderburn & Co. to Tuttle. Receipt of fee acknowledged. Data as to advertising and selling invention.
- July 7, 1896. Letter from John Wedderburn & Co. to Tuttle. Return of executed application papers and fee of \$25.00 acknowledged.
- July 8, 1896. Usual roll of honor circular. Usual "Recorder" circular letter.
- July 18, 1896. Application filed Serial No. 599,640, Invention Nut Lock.
- July 21, 1896. Letter from John Wedderburn & Co. to Tuttle. Is much impressed with the invention. Proposes to advertise and sell. Also advises as to foreign patents.
- Aug. 10, 1896. Claims rejected.
- Oct. 15, 1896. Application amended.
- Oct. 23, 1896. Claims rejected.
- Nov. 16, 1896. Letter from John Wedderburn & Co. to Tuttle. Notice of second adverse action by the Patent Office. Case receiving best attention. Advisability of taking out foreign patents suggested, in Canada and Great Britain at least. Terms stated. Offer to act as agent in selling invention.
- Nov. 24, 1896. Application amended.
- Dec. 1, 1896. Letter from John Wedderburn & Co. to Tuttle. Refusal to advance necessary amount to cover cost of advertising.
- Dec. 8, 1896. Claims rejected.
- Jan. 22, 1897. Letter to Patent Office from John Wedderburn, (Argument).
- Feb. 15, 1897. Claims rejected.
- Apr. 10, 1897. Letter from John Wedderburn & Co. to Tuttle, stating want of success in securing patent.

In this case the inventor is assured that no anticipatory references have been found, and thus encouraged to prosecute an application for a patent though even a cursory search would have disclosed the references cited by the examiner, which references clearly negative the patentability of the invention. Copies of these references are annexed (Exhibit).

He is urged to advertise and sell the invention, and is granted the usual "silver medal." The National Recorder circular letter follows with its advice to advertise: all this before the application for letters patent has been filed.

Within three days after the application has been filed the inventor is told that Wedderburn & Co. are much impressed with the invention, and proposals are placed before him as to advertising, selling and securing foreign patents.

Incompetency or neglect on the part of the employe who made the preliminary search might excuse the above, if this were an isolated case, but, after receiving the second letter of rejection from the patent office, Wedderburn & Co. advise the inventor to take out foreign patents in at least Canada and Great Britain, and offer to act as agents in selling the invention. They do this with the full knowledge that the patent office does not consider the invention patentable, thus in the capacity of confidential advisor suggesting their client should pay them additional fees and incur other expenses where no probable advantage can be derived by him. Furthermore, in advising him to entrust the sale of his unpatentable invention to them, they encourage him to seek a sale for an invention of more than doubtful worth, in view of the office action, to a third party, where actual sale would in equity strongly suggest collusive fraud on the part of the attorney.

The exhibits in the case of Silas C. Purdy, over and above the general scheme outlined, discloses the following facts worthy of special mention:

In the letter of May 21, 1896, Wedderburn & Co. inclose a proposition of the National Recorder as to advertising the invention for sale, which proposition they recommend Purdy to accept. This shows that Wedderburn & Co. and the National Recorder work together for a common end.

The letter of Purdy to Edson Brothers, has the following statement going to show that the practices of Wedderburn & Co. bring the patent office into bad repute in the eyes of persons who deem themselves defrauded by said Wedderburn & Co.: "I do not think that government ought to take the government fees and not grant a patent it looks like a ring," etc.

The case of Laura A. Peck, in which a complaint has been filed, record herewith, discloses the following special facts:

Nov. 6, 1896, Wedderburn & Co. wrote Miss Peck: "We have made a thorough examination of the records of the patent office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent. There is no doubt but that your invention is a very valuable one," etc. Nov. 20, 1896, Wedderburn & Co. call for further description and sketches of the invention in order to enable them to prepare the specification. Such a request after reporting that a thorough examination failed to disclose an anticipation and that the invention was a valuable one, certainly casts suspicion upon the intelligence and skill employed in conducting the preliminary search and the reliability of the opinion expressed as to the value of the invention.

Dec. 22, 1896, Wedderburn & Co. acknowledge the receipt of the executed application and an additional sheet of sketches and descriptive matter and stated that they "have changed the specification to conform therewith." This practice appears to be a violation of Rule 10, Rules of Practice, and cannot be too strongly condemned.

April 15, 1897, a letter by Wedderburn & Co. to Miss Peck contains this reflection upon the office: "In defense of our non-action in the matter we would say that we intentionally allowed the matter to drop awaiting a change in the administration, as the last administration has been an unusually illiberal and technical one, and we thought it to your interest to await the advent of a new commissioner."

"Immediately upon the confirmation of the new commissioner your case received prompt attention and amendment was filed."

The "envelope cases" are of more than ordinary significance as illustrating the unreliable searches made by Wedderburn & Co., and also illustrate one group of the numerous duplicate applications filed by Wedderburn.

The application of W. A. Suttle, of Macomb, Ill., Serial No. 574,060, filed by his attorney John Wedderburn on Jan. 2, 1896, for envelope, sets forth as an improvement in envelopes a string secured along one of the interior edges of the envelope and projecting out at one corner, so that the string can be readily grasped by the fingers and the envelope quickly torn open by a slight pull on the string. A sample envelope provided with such a string is shown in a sample annexed hereto, (see Steadman exhibit). The Suttle application was rejected on Jan. 24, 1896, upon reference to the patents to Phelps, No. 20,087, Apr. 27, 1858, to Morman, No. 476,549, June 7, 1892, and a Swiss patent, which completely anticipate any possible patentable novelty in Suttle's application. It is not understood how an attorney could advise a client to file an application for a patent on the simple envelope

opener set forth in Suttle's application, when a search of a few minutes would have disclosed the following patents, copies of which are annexed hereto, showing such device to be old.

20,037,	Phelps,	Apr. 27, 1858,
114,672,	Gregg, H. K.	May. 9, 1871;
180,777,	Magruder & Walsh,	Aug. 8, 1876;
271,413,	Busse,	Jan. 30, 1883;
453,726,	Post,	June 9, 1891;
476,549,	Morman,	June 7, 1892;

Suttle's application was finally rejected on Feb. 13, 1896.

Regardless of the fact that he had already filed Suttle's application for this envelope opener and also that the office had cited some of the above patents in the Suttle application on Jan. 24, 1896, attorney Wedderburn, about two months later filed another application for the same thing, to-wit, the application of Charles M. Dunbar, of Guthrie, Oklahoma Territory, Serial No. 583,722, filed Mar. 18, 1896, for Envelope. This application was rejected first on April 23, 1896, and finally on Dec. 10, 1896.

On July 1, 1896, Wedderburn writes to Joe Steadman (see Steadman exhibit annexed hereto) with regard to the envelope opener: "We have received your letter of the 20th ult., inclosing a model of your improved envelope. The idea appears to be an ingenious one and is clearly a patentable subject. On receipt of five (\$5) dollars we will be pleased to examine the patent office records and advise you as to whether a patent can be obtained, etc." Again on Aug. 8, 1896, Wedderburn writes Steadman, "Your letter of the 3rd inst., enclosing samples of your invention in envelopes, and \$2.00 to cover the cost of a special search thereon, and a year's subscription to the National Recorder has been received."

* * * * *

"We have made a thorough examination of the record of the patent office and find as the nearest reference to your invention patent No. 271,413, copy of which we herewith inclose.

Please remit \$20, to cover the first government fee of \$15, and \$5, the cost of one sheet of official drawings, and upon the receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution."

* * * * *

On Oct. 20, 1896, Steadman writes Wedderburn in regard to clipping from the "New York Journal" in which an envelope opener by pulling a string is referred to.

On Oct. 28, 1896, Wedderburn writes "relative to the clipping which you inclose will say, that we know nothing of the device described therein. We do not, however, think you need feel alarmed concerning it, as the special search which we made upon your device failed to show any conflicting patent."

* * * * *

"We note that you have received the silver medal which was awarded you, and are glad that you are pleased with it. We also note that you will be prepared in a few days to proceed with an application for patent."

Steadman apparently never filed an application for the envelope owing to the fact that J. A. Fretwell, a possible financial backer of the Steadman envelope had a search made by another firm of patent attorneys, who cited four patents as completely anticipating the Steadman device. See general post office department exhibit of Steadman's papers.

The application of Herman Meerholz, of Baltimore, Md., serial No. 602,775, for envelopes, was filed by Wedderburn on Aug. 14, 1896. This application was first rejected on Sept. 15, 1896, and finally rejected on Nov. 24, 1896.

George Richard Ashton, of Bristol, R. I., is next in order with the envelope device. Wedderburn filed his application on Dec. 4, 1896, serial No. 614,449, for envelopes. This case was first rejected on Dec. 31, 1896 and finally rejected on Mar. 23, 1897.

Wedderburn's latest client on the envelope device is Robert Rand Hall, of Hartford Conn., application serial No. 616,035, for envelope, filed Dec. 17, 1896. This case was rejected on Jan. 12, 1897, and has not yet come up for the second rejection.

The preliminary correspondence of attorney Wedderburn with Steadman (copies of which are annexed hereto) follows his general scheme above outlined and is undoubtedly a fair sample of the way each of the applicants above referred to was advised a "thorough examination" has been made, that his device was clearly patentable, that he should remit fees at once, that as soon as the application was filed he would be secure from anticipation by any other inventor, and that if desired steps would be at once taken to find a purchaser for the prospective patent, and a silver medal was awarded him. It does not appear from the Steadman letters that he had been advised to advertise in the National Recorder. It is presumed, however, that each of the applicants were advised to do so, since this is his usual custom.

Suttle the first applicant for whom Wedderburn

filed a case on the envelope should have been advised that there was nothing patentable in his envelope in view of the half dozen patents showing the device to be old. The only possible excuse that Wedderburn can have for not so advising Suttle would be that he had been unable to find any one of said half dozen patents. These patents are all in the sub-class of Paper Manufactures, Envelopes.

Such an excuse would indicate "such a lack of skill which belongs to the profession of a patent attorney as to impute to him a fraud upon his client," or "show that he had been grossly negligent in the performance of his duties." Such an excuse could hardly be of any avail in view of the fact that its efficacy decreases rapidly as the number of such cases are discovered in the office, and the fact has heretofore been stated that nearly one half of all the cases filed by Wedderburn contained no patentable subject-matter.

When the successive applications of Dunbar, Meerholz, Ashton and Hall, respectively, are considered, it is not understood that any possible valid excuse can be offered for filing them. Each of these cases was filed subsequently to the office rejection of the Suttle case, which clearly showed that there was nothing patentable in the idea. Although Wedderburn may have been negligent or unskillful in his preliminary search in the Suttle case, nevertheless he is legally presumed to have knowledge of the non-patentability of the envelope opener by receipt of the first letter of rejection in the Suttle case on Jan. 24, 1896. It would therefore appear that in filing the four subsequent applications, Wedderburn has been guilty of unskillfulness, gross negligence, and gross misconduct.

This is but one of the thirty-one groups of applications reported by the primary examiners as filed by John Wedderburn, from March 3, 1895 to March 3, 1897, the individual cases, each of which are so nearly identical, that one would not be allowable in view of what is disclosed in the others.

THE PRIMARY EXAMINERS NOTES.

Twenty groups of two applications each, and in eighteen of these groups the examiners state that no patentable matter is disclosed.

Three groups of three applications each, all containing no patentable matter.

One group of four applications, all considered non-patentable.

Two groups of five applications each, all considered non-patentable.

Three groups of six applications each, all considered non-patentable.

One group of seven applications, all considered non-patentable.

One group of nine applications, all considered non-patentable.

It is to be noticed that on only two groups of two applications each, do the primary examiners admit the presence of any patentable subject-matter. In most of the non-patentable groups some of the applications, in most cases all of the others, were filed after the one first filed had been rejected. This precludes ignorance of the actual state of the art at the date of filing the later applications, even if a faulty preliminary search had been made.

Examples of such groups are:

ENVELOPES.

Joseph M. Gray, Serial No. 602,652, filed August 13, 1896.
Ivan G. English, Serial No. 614,750, filed December 7, 1896.

STOVE PIPES.

Elias Graham, Serial No. 597,208, filed June 27, 1896.
William J. Dressel et al., Serial No. 599,821, filed July 20, 1896.
Mary Taggart, Serial No. 597,922, filed July 3, 1896.
James Morrison, Serial No. 600,949, filed July 29, 1896.
William H. Taliaferro, Serial No. 604,562, filed September 1, 1896.

DOMESTIC BOILERS.

Geo. Delanty, Serial No. 608,201, filed Oct. 8, 1896.
William Henley, Serial No. 585,675, filed March 28, 1896.
Isaac Stout, Serial No. 593,825, filed June 1, 1896.

BOTTLES—NECK BREAKABLE.

Thomas Forster, Serial No. 600,414, filed July 24, 1896.
Asa Kindley, Serial No. 606,241, filed Sept. 18, 1896.
Henry C. Schlichter, et al., Serial No. 610,069, filed Oct. 26, 1896.
James W. Jones, Serial No. 610,040, filed Oct. 20, 1896.
James J. Studley, Serial No. 618,601, filed Jan. 9, 1897.

BOTTLES—NON-REFILABLE.

Arnold A. Bahre, Serial No. 594,547, filed June 6, 1896.
Christian Reiss, Serial No. 611,741, filed Nov. 11, 1896.
Frederick L. Snyder, Serial No. 599,642, filed July 18, 1896.
John W. Glessner, Serial No. 572,540, filed Dec. 18, 1895.
Paul B. Davis, Serial No. 611,634, filed Dec. 5, 1896.
Benjamin F. Wade, Serial No. 578,419, filed Feb. 7, 1896.

BOTTLES—NON-REFILABLE.

Lawrence Johnson, Serial No. 600,247, filed July 23, 1896.
John H. Rosen, Serial No. 618,913, filed Jan. 12, 1897.
Marietta F. Ayler, Serial No. 593,798, filed June 1, 1896.
Philip S. Barnes, Serial No. 608,611, filed Oct. 12, 1896.
Charles H. Hahn, Serial No. 624,926, filed Feb. 25, 1897.
Jacob Calvin Hess, Serial No. 578,584, filed Feb. 8, 1896.
James Merigan, Serial No. 612,429, filed Nov. 17, 1896.
Alaysius H. Klinger, Serial No. 622,700, filed Feb. 10, 1897.

BOTTLES—NON-REFILABLE.

Alvin J. Branham, Serial No. 616,357, filed Dec. 19, 1896.
John W. Drew, Serial No. 622,428, filed Feb. 8, 1897.
Charles A. Taylor, Serial No. 619,150, filed Jan. 14, 1897.
Joseph T. Berthelote, Serial No. 618,032, filed Jan. 5, 1897.
Francis Blanding, Serial No. 607,234, filed Sept. 28, 1896.
John Karlik, Serial No. 619,332, filed Jan. 15, 1897.

Other exhibits attached hereto relating to the practices of John Wedderburn that deserve special mention are:

Letter to James Slater, North Mills, Pa., advising Slater that his quilting frame, "if properly handled should be worth ten or fifteen thousand dollars at least." This appraisal of Slater's appears to be exorbitant and to have been made to unduly influence him to file an application.

Letter of Ira G. Pell of Trumansburg, N. Y., stating that he received a silver medal from Wedderburn & Co., and advised that no anticipatory reference exist for a device for which another attorney thereafter found a complete anticipatory reference.

From an examination of the papers and cases submitted relating to the practices of John Wedderburn & Co., the following deductions appear to be warranted:

The awarding of prizes and medals without reference to the patentability of the device and indiscriminately to all who pay the preliminary examination fee, and the advertisement that such an award amounts to a certificate of the highest merit and is so regarded by a large proportion of the advertisers in the National Recorder, constitutes a deception or artifice tending to deceive the inventors, and lead them to pay fees to Wedderburn & Co., and the National Recorder which they would otherwise not do.

The searches made by John Wedderburn & Co., and their report that such searches fail to disclose anticipatory references and their advice to proceed with an application, and the subsequent complete rejection of a large percentage of such cases, constitute either gross unskillfulness or gross negligence in making said searches.

The advertisement by Wedderburn & Co., that their report upon each search will constitute a certificate of patentability and be of great value in promoting the invention, whereas said searches are worthless in a large percentage of cases constitutes actual or positive fraud, being either a misrepresentation known to be false or one not known to be true.

The worthlessness of the preliminary searches in a large percentage of cases filed by said Wedderburn, after holding himself out as of a profession skilled in such matters, and especially after claiming to possess the highest class of skill in his line, indicate such an omission of the skill which belongs to his profession as to be imputable to him as a fraud upon his clients.

The report to Joe Steadman on August 8, 1896, that the nearest anticipatory reference was a patent, which but remotely anticipated Steadman's device, whereas theretofore, to-wit: on the 24th day of January, 1896, in the case of W. A. Suttle, and on the 23rd day of April, 1896 in the case of Charles M. Dunbar, he was officially advised of such a state of the art as absolutely precluded the grant or a patent, constitutes either gross negligence in conducting his business or such a suppression of material facts as he was legally and equitably bound to disclose to his client as to amount to an intent to defraud. Or if said Wedderburn was of the opinion that the reference cited Steadman was equally as good as the references theretofore officially cited to him in the Suttle and Dunbar cases, then he must have known that said Steadman's device was completely anticipated and the soliciting of fees from Steadman on the 8th day of August, 1896, in order to proceed with an application, constitutes actual fraud.

And, in general, the filing of numerous subsequent applications for devices patentably identical with those for which said Wedderburn had already filed applications, which said applications he had, prior to the filing date of the subsequent applications, been officially advised were fully anticipated by references cited, also constitute either gross negligence in conducting his business or such a suppression of material facts as he was legally and equitably bound to disclose to his clients, as to amount to fraud.

The soliciting of fees for advertising the invention for sale after the rejection of the case upon references which completely anticipate the invention; the advising the client to take out foreign patents, and the soliciting of fees for this purpose after a similar rejection, are unprofessional and constitute gross misconduct. (See cases of J. Edgar Tuttle, James Slater and Laura A. Peck.)

SUPPLEMENT A.

The case of Gardner M. Fossett discloses the following facts bearing upon the business methods of John Wedderburn:

Nov. 28, 1896, Wedderburn & Co., advised Fossett that no reference was found approaching his invention and that a patent could be obtained. Remittance of fees was asked for, and the opinion was expressed that the invention was a "very valuable one." Patent No. 271,413, Jan. 30, 1883, to P. Busse, cited by Wedderburn & Co., in the Steadman preliminary search, referred to in the main report, fully anticipates Fossett's invention.

Dec. 3, 1896, receipt of fees acknowledged by Wedderburn & Co., for preparation of the case.

Dec. 17, 1896, Fossett's name placed on Roll of

Honor and silver medal awarded.

Fossett also advised to take out Canadian and British patents at least.

Dec. 31, 1896, receipt of \$5, acknowledged together with sketch of Fossett's life for insertion in the National Recorder.

Jan. 7, 1897, Fossett's application filed, Serial No. 618,303, Jan. 22, 1897, receipt acknowledged of \$50, in part payment of fees for preparing applications for British and Canadian patents.

Feb. 6, 1897, Fossett's claim was rejected.

Feb. 11, 1897, receipt of balance for fee for preparing applications for Canadian and British patents acknowledged, executed Canadian application received from Fossett, and authorization for the British application.

Fossett is advised to advertise sale of his invention in the National Recorder.

The record above strengthens the conclusions reached in the main report, and presents a case in which money was actually received for filing foreign applications, a portion thereof subsequent to a rejection by the office on references which clearly show the inutility of foreign applications.

The record in the application of Adam Bulin, of Whittlesey, Wis., for Wrench Attachments, filed July 28, 1896, Serial No. 600,841, illustrates the bad repute into which the U. S. patent office is brought by the lax searches and other methods of John Wedderburn. This application was thrice rejected, appealed to the board of examiners-in-chief, and the primary examiner's action affirmed in full. The references cited are so clearly an anticipation of the invention that it is scarcely credible that an application should have been filed after a preliminary search. The following letter from the applicant, dated April 27, 1897, explains itself and taken with the Purdy letter, pages 14 and 15 of the main report, forcibly shows how detrimental to the good name and reputation of the office and of the patent system, the practice of this attorney is.

The following is a copy of the letter of Bulin, original with the chief clerk of the patent office, Letter No. 66,382:

MEDFORD, WIS., April 27, 1897.

Commissioner of Patents, Washington, D. C.

GENTLEMEN:

I have received a letter from my Attorney John Wedderburn that a patent can not be granted. Well in reply to this will say that you all knew that the two invention Eisman & Crosswell, where the first two inventors and you had no right to take up the case and my money if it could not be patented.

And besides John Wedderburn made a search through the records of the Patent Office and found it could be patented, and now it can't, so you say a patent can not be granted. So I will give you a time to pay all my money back which I have paid towards the patent; which is enough to more than get one, and a hundred dollars besides for damages to me, and if you don't, pay it in the time stated, before I will sue the Patent Office for ten thousand dollars. I'll get it one way if I don't get it the other, the Patent Office has no right to take no more money than the fee of \$15.00 to see if the invention is of patentable nature.

I will not return the copy of the decision until I get settled with you and get satisfaction.

I want an immediate reply.

Box 130, Medford, Wis.

Respt.
ADAM BULIN.

WEDDERBURN'S ANSWER.

The answer of John Wedderburn and John Wedderburn & Co., to rule to show cause issued against them by the Commissioner of Patents, June 14th, makes general denial of the allegations against the firm or corporation and in the outset denies the jurisdiction, as to John Wedderburn & Co., of the Commissioner of Patents.

Form of advertisement—"Wanted an Idea"—is admitted, and a form of "prize" offering circular is set forth. It is admitted that as a result of such advertising, inventors have sent to John Wedderburn & Co., their inventions, together with certain sums of money, in consideration of which the said corporation undertook and agreed to make thorough examination of the records of the patent office, when so requested. It is affirmed that said corporation makes thorough, bona fide, and complete searches, and it is denied that it is the practice of the said Wedderburn, either willfully or by reason of gross negligence to make false, fraudulent deceptive, improper or incomplete examinations as to patentability.

It is set forth that said firm employed twenty-five or more clerks for the purpose of making preliminary examinations of searches, and that most of the searches were believed to be as competent as could be procured. There may have been a few incomplete searches made but not with respondent's knowledge. Respondent's brief says:

From the organization of said company until the date of the filing of these charges, the said Wedderburn & Co. had procured, and the said John Wedderburn had filed about 3,800 applications, and it is doubtless true that in making the searches in these cases mistakes may have been made, or there may have been insufficient searches, and they aver the truth to be, as they submit will be found on a full and complete investigation of the facts as disclosed by the

cases, that the number of cases in which inadequate search was made is comparatively small, and no greater in proportion than will be found in the ease of other attorneys doing a large and miscellaneous patent soliciting business.

Comparison is desired with applications filed by O'Mera & Co., of Washington, D. C.; Edgar Tate & Co., of New York; Association of American Inventors (G. H. Holgate, attorney), Philadelphia, and other firms.

It is denied that clients were advised that "thorough examination" had been made when in fact no search had been made, except in case of Ira H. Pell, which is declared to have been the error of some clerk.

The respondents aver that it is not true that Wedderburn & Co., are accustomed to report to persons or clients that various inventions or designs are patentable for the purpose and the result of inducing such persons to employ said Wedderburn.

With relation to the charges that the offering of prizes by the firm is intended to induce persons to apply for patents upon inventions that have already been patented, or in any other way has fraudulent intent, Wedderburn & Co. say, in part:

"These respondents deny that persons are induced by promises and offers of medals and prizes to make unpatentable inventions. By this advertisement or offer of medals nothing is done or intended than to stimulate the inventive faculties of those to whom such offers are sent. * * * It is difficult to see how there can be any wrong, from a moral, legal, or any other standpoint, in one man urging another to exert his ingenuity in the matter of invention, and for the purpose of compensating him therefor to give him a prize or medal if he succeeds in submitting an invention that is considered worthy of such prize. * * It is untrue that by such circulars persons are induced to make unpatentable inventions, and to apply for patents thereupon, and these respondents invite the production of any case or cases to substantiate this charge and demand full opportunity to meet the same upon the hearing thereof."

As to the alleged forgery of a letter of Mr. Sulzer recommending John Wedderburn as an honest and reliable practitioner, the reply is: "The answer that Mr. Sulzer did write the letter; that Mr. Sulzer did sign the letter in question, is evidenced by the letter itself, which will be produced and exhibited at the proper time, and a copy of which is set out in the charges, and Mr. Sulzer will not deny his signature if called upon to testify in that regard. From this it appears that the charge that the aforesaid testimonial is in the nature of a forgery is gratuitous and unfounded."

As to the charge that almost one-half of the applications filed by the firm have been found by the examiners in charge to contain no patentable subject matter, the reply is made:

* * * "Out of 3,763 applications filed between the dates named in the charge, according to the reports submitted with these charges, only 546 have been finally rejected. The charge is, therefore, misleading and deceptive. If on the other hand, the examiners have been superficially going through the cases filed by respondents not in the regular line of their duty and not for the purpose of finally passing upon them in their regular order, but for the purpose of endeavoring to substantiate these charges, the criticism that has been directed against these respondents should be turned in another direction. Respondents submit that persons who have filed applications for patents through them are entitled to have full hearings upon their applications according to the usual and customary methods of procedure, and that their cases should not be prejudiced by preliminary and superficial consideration by the examiner before they are searched in their regular order, for the purpose of condemning the respondents."

In answer to the charge that many cases reported by Wedderburn as patentable and valuable are in fact of little or no value and sound professional ethics would suggest that the clients be so advised, respondents maintain that "if a device contains anything that is patentable no matter how small the subject matter may be, the inventor is entitled under the law to a patent if he desires one, and he is himself the best judge of whether he wants a patent or not." Respondents say that while it is the province of the patent office to decide upon the question whether an applicant is entitled to a patent, and, if he is, to issue the same, it is not the business of the office, or anybody connected with it to set up his judgment as to the advisability of making application for a patent, nor is it the business of the patent office to condemn any patent attorney for encouraging clients to apply for patents; and it is denied that respondents have encouraged persons or clients where there was but a small patentable subject matter, with intent to defraud them.

Respondents deny that in many cases they have filed duplicate applications for various persons for the same invention, and respondents further say that of the cases set out in list of "unpatentable cases" fifteen contain patentable novelty," the truth of which statement "will be apparent to any unprejudiced person making an examination of said cases who is competent to pass upon the question of patentable

novelty."

After thus questioning the capabilities of the patent office force respondents deny that it is unprofessional to file duplicate applications and refer to rule 97 for authority.

In answer to that portion of the complaint wherein it is stated that "it is believed that an investigation of the files of the patent office will discover a number of applications filed by this solicitor which in view of the state of the arts to which they relate, should not have been presented, and would not have been if proper examination had been made of patents issued, or if the inventors had been fully and honestly advised as to the state of the arts," respondents hold that this is not a charge but an expression of belief only. The same is said to be true of correspondence with Paul F. Kolk, of Baltimore.

In the charges against Wedderburn & Co. there were several specific cases mentioned as showing frauds on the part of the firm. These cases are each taken up by the company in its answer. Regarding application of J. Edgar Tuttle for nut lock, answer says:

These respondents find on a personal examination of this case that a negligent search was made by the searcher who examined the records of the patent office, and in their opinion the device is devoid of patentable novelty. They had no knowledge of the matter until it was called to their attention in these charges, and they will refund all fees paid in the case. They relied upon their employees, as they must necessarily do, and they deny that there was any fraudulent intent or conduct on their part, directly, or indirectly as they have exercised the highest degree of care in selecting their entire force of assistants.

Regarding application of Laura A. Peck, for bicycle saddles, answer says:

"This case is of undoubted patentable novelty" and the failure to obtain a patent is credited to the revocation of respondent's power of attorney. Regarding the application of August Sooker, for clasp, answer says:

It is believed that no attorney in making a preliminary search would have deemed this invention anticipated by the patents cited by the Examiner, and it is submitted that the case has received proper care and attention from the time it was first placed in these respondent's hands until the Power of Attorney was revoked, and it is confidently asserted that had the case been left with these respondents an allowance would have been secured before now. There was an oversight on the part of the clerk answering applicant's letter of October 19, 1896, in informing him that the case was being prosecuted when it had not been filed.

In conclusion respondents deny that the business in any of the cases cited in the complaint, or any cases whatever, procured by said corporation and prosecuted by John Wedderburn was not solicited, procured and prosecuted in a fair, proper and professional manner, and it is averred that John Wedderburn is the attorney of the clients of the said corporation of John Wedderburn & Co. and not the attorney of said corporation. Respondents deny that they have been guilty of gross misconduct or fraud.

The hearing in this case before the Commissioner of Patents will be concluded on the 28th inst.

Unique Excursion for Amateur Photographers.

The B. & O. R. R. has arranged a novel excursion for the benefit of Amateur Photographers to Harper's Ferry, W. Va., Hancock, Md., and Cumberland Md.

This excursion will be in charge of an experienced, professional photographer. Special car will be provided with a dark room and chemicals for developing negatives. Baggage compartment for photographic outfits, etc.

Train will leave B. & O. Station 11:45 A. M., July 9th. Tickets valid for return until July 12th. This is a rare opportunity for Amateur Photographers to get studies from nature at these historic points.

Round trip rates to Harper's Ferry \$1.65 Hancock, \$1.95; Cumberland, \$3.05. Stop overs allowed at Harper's Ferry and Hancock.

Further information can be had by applying to B. & O. agents. New York Ave. and 15th St., 619 Penna. Ave. and Station New Jersey Ave. and C St.

Ice Cream and Inventors.

No small amount of inventive genius has been applied to the various methods of freezing ice cream and ices, something over 200 patents having been issued on this class of inventions, and doubtless there is still room for improvement.

The forty-sixth meeting of the American Association for the advancement of Science will be held in Detroit, Mich., from Saturday, August 14, 1897. The preliminary programme, just published, embraces a meeting of the council at noon on Saturday, 7th, and an opening general session of the association at 10 a. m. on the Monday following, under the presidency of Prof. Wolcott Gibbs of Providence, R. I.

To Prevent "Roosters" from Setting.

According to the specifications forming part of letters patent No. 582,320, dated May 11, 1887, issued to Andrew J. Sparks of Ambia, Texas, the invention relates to certain new and useful improvements in a device for preventing "hens" from setting, but according to the official drawings—fac simile illustration herewith—it is the opinion of Mr. Sparks' attorney that the hood will have the same effect if attached to the rooster. The claim is made that a fowl provided with one of these automatic hoods can neither see to the right or the left, nor upwards, and is thus prevented from flying to an elevated position where the nests are usually located; while the action of eating—looking downward—is not interfered with.

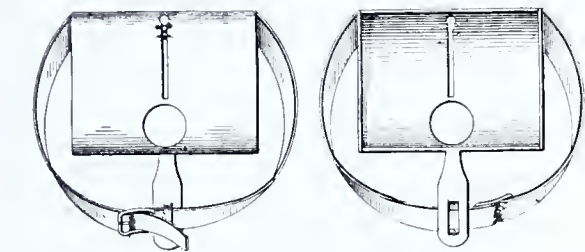
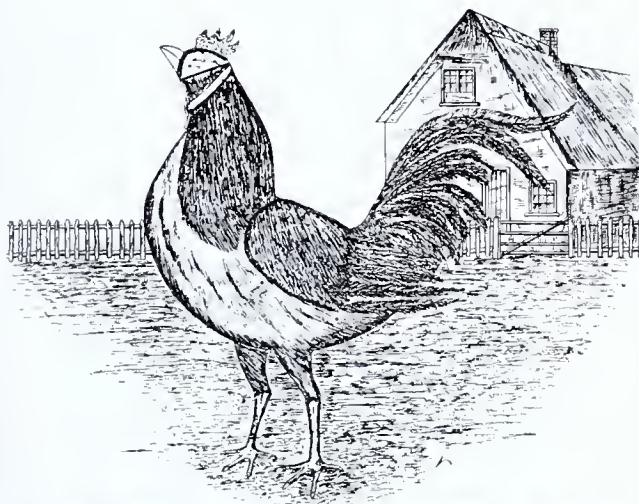
The inventor of this ingenious device probably received a medal for special merit and was undoubtedly advised that his invention was worth quite a sum of money, if properly exploited—and advertised. The inventor in this case did more. He cor-

(No Model)

A. J. SPARKS
DEVICE FOR PREVENTING HENS FROM SETTING

No 582,320

Patented May 11, 1897



WITNESSES
J. Gregory
J. Appen

INVENTOR,
Andrew J. Sparks,
by J. H. Wickham
Attorney

responded with a reader of the INVENTIVE AGE who is a model maker and the correspondence printed herewith explains itself:

JUNE 29, 1897.

Mr. Andrew J. Sparks, Roxton, Tex.

DEAR SIR: Your letter received and we are under many obligations to you for your kind offer to let us manufacture your invention shown in patent No. 582,320. We must modestly decline your kind offer, for the simple reason that we know something about the poultry business and never heard of a rooster or male chicken setting to the extent that a device for preventing his setting was necessary.

If this rooster or cock that you show in your patent sets so much that your invention is necessary, we would advise you to sell him to some museum. It would be well for you to inform the party who took out your patent that roosters do not set and that it is only the female fowls that set.

We inclose herewith a clipping which will give you the address of Farmer Dunk and it would be well for you to write Farmer Dunk at once and if possible take him in as a partner as he is liable to cross the breed between the common chicken and a kangaroo or a saw buck and in this way give the chicken so much legs that he can not set for standing. This would have a tendency to lower the value of your patent and by taking Farmer Dunk in as a partner you will get the benefit of his improvements.

If you will write the INVENTIVE AGE, Washington, D. C., and inclose ten cents and ask them to send you a copy of their paper for June 1897, you will find therein a good picture of the commissioner of patents jerking a few of the tail feathers out of your chicken.

* * *
GREAT SCHEME.

Farmer Dunk Proposed to Make Up For Gold Brick Losses.
[New York World.]

"Wall, yuss," confessed Farmer Dunk, somewhat reluctantly, in reply to the pointed inquiry of Neigh-

bor Hornbeak, "bein' as you ask me about it, I guess I'll have to own up that I did git kinder bit by a sharper while I was up to the city. I s'pose I ought to be old enough to keep out of sech traps, bein' as I read the papers quite a good deal an' ponder more or less on what I read, but—ah!—there is no fool like an old fool, you know, an' I jest stumbled into it like a blind horse into the first green grass of spring.

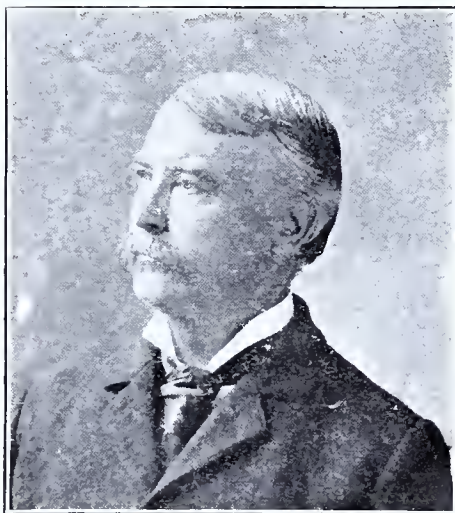
"It cost me some money—most all kinds of experiences are pretty high-priced, considerin' their doubtful value—an' it also had a depressed effect on my feelin's, but still the incident had its bright side. My leg was pulled, as slangy people express it, quite a good deal, an' is considerable longer, figuratively speakin', than it needs to be to match the other one, but while I was ponderin' over that discouragin' fact I was struck by an idea which, if I can put it into successful workin' order, ought to pay me back a good deal more than the experience cost me.

"You know how chickens will scratch up the choicest an' most expensive seeds you plant, an' the young vegetables an' nice, soft flower beds that you've worked so hard to make? Wal, now, if I can succeed in crossin' long-legged Brahmas with short-legged bantams in sech a way as to produce a breed of chickens with one long an' one short leg, it looks as if when they attempted to scratch they would lose their balance an' tumble down, an' after a few trials had shown them that scratchin' was an impossibility they would give it up in disgust. An' it 'pears to me that lots of men have made fortunes out of a good deal more foolish things than inventin' a brand of absolutely nonscratchable chickens."

That the humor may be properly appreciated it was necessary to reproduce the page of drawings, showing how the device is intended to keep the rooster from setting, "substantially as described," etc.

William Small.

William Small, the subject of this sketch is, 53 years old, and is well-known in this city where he has resided since 1865. For nearly 17 years he was an



official of the treasury and post office departments, and as special agent of the latter department for about 7 years had occasion to visit in his official capacity almost every section of the United States and the Canadian Provinces. In 1882 he voluntarily resigned his position of special agent of the post office department to engage in the practice of his profession, the law, having graduated as Bachelor of Laws, Columbian University Law School, class of 1869, and from that time until the death of his partner, the late Hon. J. M. McGrew, about two years ago, he was a member of the well-known law firm of McGrew & Small, of this city. Mr. Small has been admitted to practice and has practiced to a greater or less extent in all the courts situated in the District of Columbia, including the United States supreme court.

Early in their movement against the fakir, bogus, confidence game "patent attorney" concerns the reputable patent attorneys of this city retained Mr. Small to represent them before the post office and interior departments and it is but due to him to state that the good results already achieved towards the exposure and suppression of such dangerous and disreputable concerns are largely due to his efforts in that direction.

An unique feature of the exposition of 1900 in Paris that is expected to rival the Eiffel Tower and Ferris Wheel will be a mammoth bicycle. It will be a carefully constructed edifice of the best Bessemer steel. There will be two large entrances cut through the tires from which spiral steps will ascend to the handle bar and saddle. On the saddle will be a broad platform, large enough for an elaborate dance to be given, and in the backbone of the big wheel will be a grand salon and banquet hall, capable of accomodating 600 people.

The Public Benefit of the Patent System.

Sir William Siemens always held that the way to limit the usefulness of an invention was to make the public a gift of it. As he put it: "If a good idea were lying around in the gutter, free to all, it would pay the community to make a present of a patent for it to any man competent to work it." The soundness of this principle is well illustrated in the case of Professor Hughes, the American electrician, who invented the microphone. He did not patent the instrument, meaning to leave it free to all. The only result was that others patented microphone transmitters for telephones and reaped the harvest which otherwise would have come to him. Another striking illustration is brought to mind by the announcement that a large American carborundum factory is about to be built in Germany and another in Canada, the latter to be worked by the power of Niagara. M. Moissan, whose researches on the electric furnace are widely known, discovered, among other by-products of the furnace, compounds of carbon with boron and silicon. Carbo-silicon is excessively hard, and makes a magnificent abrasive. On the other hand, quite independently of M. Moissan, E. C. Acheson, an American also discovered the carbo-silicon compound. Unlike M. Moissan, however, Mr. Acheson did not merely record the fact of the discovery but patented the process. The result is that while the work of Moissan has not directly benefitted humanity by one atom, a valuable new industry has been established at Niagara, where 4,000 pounds of carborundum, which is now used for grinding wheels and a number of other abasive purposes, can be produced by one furnace in twenty-four hours. These electric furnaces are the largest yet constructed, being sixteen feet long by five feet square. The carborundum factories which are being built in Germany and Canada will be under American management.

Protection to Inventors.

In the recent decision in the "Dodge chain" infringement suit, appears an emphatic assertion of the principle that the inventor and patentee of a really new and valuable improvement is entitled to the protection of the law under a broad view of the scope of the invention, and cannot be deprived of his rights by the substitution of differing details in a substantially equivalent device. The breadth of the decision is shown by the following extract: "In our judgment the device shown by Dodge's patent was novel in character, disclosed an invention of very decided merit and was a substantial advance over mechanical constructions theretofore used in the art to which it appertained, and the claims of the patent should have such a construction as will give the patentee the full benefit of the advance which he has contributed to the mechanical arts and claimed. While the respondent's device is different in appearance, of seemingly different construction, and manufactured in a different way, yet when we go beneath these surface variations and measure it by the test of functional purpose and operation, we find it is in substance, purpose and operation the same mechanism * * * While the appellant has avoided a mere servile copy of form, he has appropriated the substance of the Dodge invention. That in doing so he has rendered inoperative the function on one groove will not suffice to relieve him from the charge of infringement. Every element of the first claim is found in his structure. He uses the elements of the second, modified in form to suit the peculiar conformation of his rectangular links, but identical in functional effects to secure the pintle like bearings, and those of the third to gain the non-tortional relation between the links. He gets the same result which Dodge first showed by substantially the same means and in substantially the same way. We are of opinion the court below reached a just and proper conclusion and its decree should be affirmed."

The 12-year old son of Vice-President Garrett A. Hobart, Garrett Jr., will be an inventor some day. He is a bright little fellow, with a decided taste for mechanics, and what might be called almost a craze for electrical work. He has a little electrical laboratory in the top of the house, and with a boy friend, he has established a partnership for the putting up and repairing of electric bells, electric lights, and matters of that kind.

Alvan G. Clark, the famous manufacturer of telescopes, died suddenly at Cambridge, Mass., June 9, of apoplexy. Mr. Clark's last work was the completion of the 40-inch lens for the Yerkes telescope of University of Chicago.

The X-Ray Journal is the name of a new monthly publication devoted to practical X-ray work and allied arts and sciences. It is published in St. Louis by Heber Roberts, M. D.

PATENT LAW ASSOCIATION.

Pen Sketches of Some of Its Members.

Wallace A. Bartlett.

Wallace A. Bartlett is a native of New York State. At the breaking out of the war of 1861 he was "junior devil" in the office of the Western New Yorker, and dropped one "shooting stick" to take up another. After rather more than four years service in 1st New York and 19th U. S. with the usual accompaniments of a wound or two, a winter in a confederate "summer resort," and a commission or two, Capt. Bartlett found himself in Texas during the stormy reconstruction period, and left the comparative peace of army life for the excitement of running a newspaper. That enterprise having been closed out by a bonfire, the young editor sought a more salubrious climate in the northwest, and spent some time as correspondent for Chicago newspapers. Coming to Washington during the Johnson impeachment trial, Mr. Bartlett found employment in the government printing office, and was soon foreman of the specification department, where the patents are printed. This position he resigned to accept a considerably smaller salary as third assistant examiner in the patent office (under civil service rules) in August, 1873, and was promoted grade by grade to principal examiner in 1875. In the patent office he at various times had



charge of the printing and the examiners' classes of guns, ships, signals, wood working, stone working, etc. Resigning office in 1883 to enter on patent practice, Mr. Bartlett availed himself of the freedom of private life to patent a dozen or more of his own inventions relating to guns, being associated with Capt. Zalinski, U. S. A., in dynamite gun inventions.

In an active practice of some 14 years, Mr. Bartlett says he has taken out patents for inventors on almost every imaginable subject, but he "does like a gun case best of all, because a gun can never be mistaken for a grist mill or a sewing machine."

When the proposed changes in the patent law were before congress last winter, Mr. Bartlett was the first to print a protest over his own signature, which protest he sent to each senator, and he was an earnest advocate, in the patent law association, of the effective work by the association which prevented the enactment of some very vicious propositions into law.

Joseph L. Atkins.

Joseph Leicester Atkins, was born in Akron, Ohio, March 20, 1863. He resided from 1866 to 1878 in the state of Georgia. During the last six years of his residence in that state he attended the public schools at Savannah, graduating from the high school at that place in 1878. From 1878 to 1882 he attended College at Bethany, W. Va., where he received the degree of Bachelor of Arts in June 1882, being the second honor man and the salutatorian of his class.

Immediately after his graduation he was appointed to a clerkship in the United States pension office, in which he continued for two years to hold a position in order to enable him to pursue his legal

studies. He entered the National Law School in the fall of 1882, and received the degree of LL. B. in the class of 1884. Within a few days after grad-



uation he returned to Savannah, Ga., which had continued to be his legal residence, and upon examination in open court, was there first admitted to the bar.

He subsequently resided for two or three years in Lock Haven, Pa., where he was engaged in the general practice of law.

Upon the dissolution of the firm of Baldwin, Hopkins & Peyton, he formed a law partnership with Major Marcus S. Hopkins, under the firm name of Hopkins & Atkins, which continued in existence until the retirement from practice in 1893 of the senior member of the firm, when he succeeded to the business.

He was admitted to practice before the supreme court of Pennsylvania in 1888, and before the supreme court of the United States, October 14th, 1891.

Henry Calver.

The subject of this sketch was born in England but came to this country when a small boy, and received his education in the public schools of Columbia county, New York, where his parents settled. Mr. Calver came to Washington in 1871 and entered the Meteorological Department of the Signal Corps, being assigned to duty in the office of the chief signal officer in this city. His special meteorological studies were such that in 1875 he was selected by Gen. Myer, then chief signal officer, to investigate and report on a series of destructive tornadoes which occurred in Alabama, Georgia, and South Carolina in March of that year, and in 1877 was again designated for similar duty to investigate and report on the tornado which destroyed the principal part of the town of Mt. Carmel, Ill., early in the summer of that year.



His elaborate papers on these tornadoes were published in the reports of the chief signal officer for 1875 and 1877.

Mr. Calver entered the examining corps of the patent office in August, 1877, securing his appointment solely on competitive examination; and during the next succeeding three years he received three promotions, secured in the same manner. During the time of his service in the patent office he studied law

at the law school of the Columbian University from which he graduated in 1881, and received the post graduate degree from the same school in 1882, at which time he was admitted to the bar of the Supreme Court of the District of Columbia. Several years since he was admitted to practice before the Supreme Court of the United States.

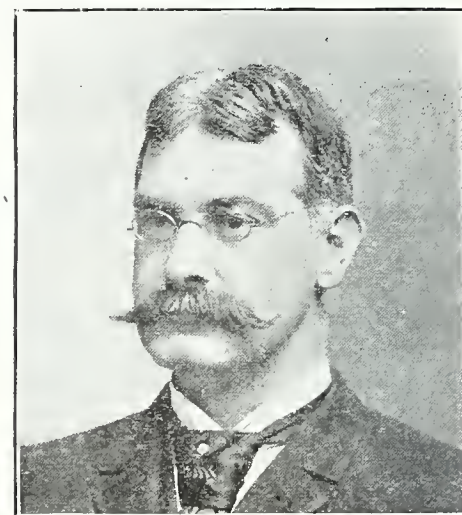
Mr. Calver resigned his position as First Assistant Examiner in the patent office in 1883 to enter upon the practice of patent law in this city, and during the time he has been in practice he has conducted a large number of important cases in the patent office, besides acting as expert in many important suits in the courts.

A large part of the time of Mr. Calver's service in the patent office was occupied in the examination of applications for patents relating to sewing machines, and since leaving the patent office he has made something of a specialty of this class of inventions in which he is acknowledged to be one of the leading experts in the country. At the present time he represents The Singer Manufacturing Co. and a number of other large manufacturing corporations and firms before the patent office.

Frankland Jannus.

Mr. Frankland Jannus removed to this city from Warrenton, Va., in the fall of 1877, when his father, Prof. Anthony Hebersak Janus, was appointed to the chair of modern languages in the Columbian University. The subject of this sketch was born in 1853, and during many of his earlier years was employed in gathering mechanical knowledge and experience to qualify himself for the future practice of his chosen branch of the legal profession, although at the time it appeared that he was doing a great many troublesome and fatiguing things which he would have preferred to have had done by others.

Mr. Jannus having begun the study of law while



directing a manufacturing establishment, on arriving in Washington proceeded to complete his studies, and after spending a few weeks in the office of Mr. Samuel R. Bond, attorney at law in this city, became a student in the office of Mr. L. G. Hine, where he remained several years, in the meantime being admitted to the bar and gaining experience in various branches of the law. He was subsequently admitted to practice before the Supreme Court of the United States.

Being early interested in the subject of electricity, he made it his particular study, and beginning with the prosecution of electrical cases gradually established himself in general patent practice, to the exclusion of all other matters. He became a full member of The American Institute of Electrical Engineers during the year 1884. For several years he represented in this city the New York patent firm presided over by the late Frank L. Pope, and from 1883 he was the attorney for the late Charles J. VanDempole, a pioneer electrician, in whose interest he took out several hundred patents, among them the now famous "Trolley" patents.

Mr. Jannus has co-operated with distinguished New York counsel in many important matters, among them assisting in the sustaining of the trolley and electric railway switch patents; and has been connected with more than a thousand applications for letters patent covering probably the entire range of industrial art. Having a natural aptitude for mechanics, and many years of practical experience in connection with various arts and process, he is able to readily grasp the details of any invention.

He has for the past 15 years confined himself to patent work alone, including all forms thereof, from the making of a preliminary examination to the conducting of a suit in court; and as he attends personally to all matters placed in his hands his clients can feel satisfied that he will advise them, not only honestly but in the light of experience. In the conduct of his business he endeavors to be fair and liberal,

expecting to be paid for his services and to give full value in return.

Mr. Jannus has been personally well known to many of the officials of the patent office for the past 14 or 15 years. He has appeared before every tribunal of the office, and before every incumbent thereof, and at one time represented a larger number of pending interference cases than any other attorney.

He has also from time to time taken part in the efforts of the better class of patent solicitors and lawyers to organize a patent law association in this city, and was among the first to support the present one. He has always maintained that any application for letters patent is one of the most difficult legal papers to draw, and that such work should only be entrusted to competent persons, who should organize for their own protection and the maintenance of the highest standard of professional efficiency.

L. Seward Bacon.

Mr. L. Seward Bacon, one of the younger practitioners of patent law in this city was born in Pontiac, Mich-



igan in the year 1860 and settled in Washington in 1877. For sometime he was engaged in mercantile business but his tastes being for a professional life he took up the study of law in 1885 and was admitted to the bar three years later and subsequently was admitted to practice before the Supreme Court of the United States. For the past ten years he has been actively engaged in the practice of patent law and soliciting patents representing large patent interests before the U. S. circuit court among which are the controlling patents in the well-known "pinch handle" and "cable" curtain holding fixtures with which the street and steam cars are now so generally equipped. He is also as attorney conducting and defending suits involving trade-mark and design patent rights.

His clientage, which includes many large concerns both in this country and abroad, has been practically all secured through the recommendations of his clients and others. He represents many large law and patent soliciting firms of Boston, Chicago, St. Louis and other cities. He is a member of B. B. French Lodge of F. A. A. M. and a conscientious and faithful attendance to the duties of his profession has gained for him an enviable reputation among his colleagues.

John J. Halstead.

John J. Halstead, senior member of the patent law firm of John J. Halstead & Son, 908 G street, was born in the state of New Jersey in 1832 and the business was established in the fifties by Joseph B. Crosby in Boston, Mass., and later the firm became Crosby & Gould. Mr. John J. Halstead, who represented the firm in Washington, resigned as Principal Examiner to become a member of the firm in 1867, under the style of Crosby, Halstead & Gould, and the same style was continued until 1870, when Mr. Halstead succeeded to the business at Washington, and which he conducted with unvarying success. In 1882 he admitted to the firm his son, Mr. Pennington Halstead, a member of the bar and a graduate of the Columbian University Law School in 1879. His early college life was spent as a student at Princeton. Mr. John J. Halstead is a native of New Jersey, and graduated from Princeton College, and then studied for the bar. From 1858 to 1863 he was assistant examiner in the patent office, and from 1863 to 1867 he was principal examiner. The firm is always prepared to give an opinion as to the patentability of any invention or discovery, and they offer professional aid in all matters pertaining to protection to inventions and the prosecution of applications for letters patent, reissues, design patents, trade-marks and labels, including the filing of caveats, searches as to novelty, contesting interferences, preparing specifications, filing assignments and licenses, securing patents in foreign countries, advising on the scope and validity of patents, investigating and preventing infringements,

serving as experts in litigation, attending to cases upon appeal and before the courts, and acting as counsel at all stages on exclusive rights. All details of patent office business receive prompt and personal attention, and the papers filed for their clients are distinguished for the thorough understanding of the case in hand. The New York office, at 132 Nassau street is conducted by the junior partner Pennington Halstead.

T. J. W. Robertson.

T. J. W. Robertson was born in England in 1833, where he learned the printing business, and arrived in New York in 1851, following his trade there until 1854, after which he spent several years in designing and patenting new inventions and obtained over a score of patents in various lines of mechanisms—one of his inventions being used on nearly every first-class sewing machine, and another one being in use in almost all railroad ticket offices, and a large portion of the business offices of the United States. During this period he made it his business to thoroughly study mechanics both theoretically and practically and to become acquainted with all new inventions within his reach.

In 1867 he came to Washington under an engagement with Munn & Co., proprietors of the Scientific American, and had charge of the preliminary examination branch of their Washington business for over nine years, besides acting as the Washington correspondent of their paper. Since 1876, he has been in business for himself as a patent solicitor and mechanical expert, in which latter line of business he has assisted at many of the most noted patent suits.

Samuel T. Fisher.

Hon. Samuel T. Fisher, ex-assistant commissioner of patents, was born in Massachusetts in 1855, and was educated at Harvard where he graduated in the class of '77, subsequently taking a special course in the Massachusetts Institute of Technology.

He entered the United States Patent Office as fourth assistant examiner in 1886 and was successively promoted through the grades of third, second, and first assistant examiner and law clerk to the position of principal examiner, which position he resigned in 1893 to accept the presidential appointment of assistant commissioner of patents, which latter position he resigned June 1st, 1897 to become a partner in the present firm of Wilkinson & Fisher, successors to Whitman & Wilkinson.

Mr. Fisher has been for a number of years a member of the Massachusetts bar. As assistant commis-



sioner, his decisions were always considered by the members of the profession as eminently fair and he carries into the practice of patent law a mind well equipped for the duties of his profession and an experience with the men and methods of the patent office which can not be excelled.

Mr. Fisher is one of the new members of the Patent Law Association and is in hearty accord with the principles expounded therein.

Charles Albert Neale.

Mr. Charles Albert Neale whose office is located on the seventh floor of the Washington Loan and Trust building just opposite the patent office, was born in Brooklyn, N. Y., but spent the early part of his life in Montrose, Pa.

He read law in the office of Gen. R. D. Mussey of Washington, D. C., and has confined himself to the practice of patent law exclusively since becoming a member of the bar some years ago.

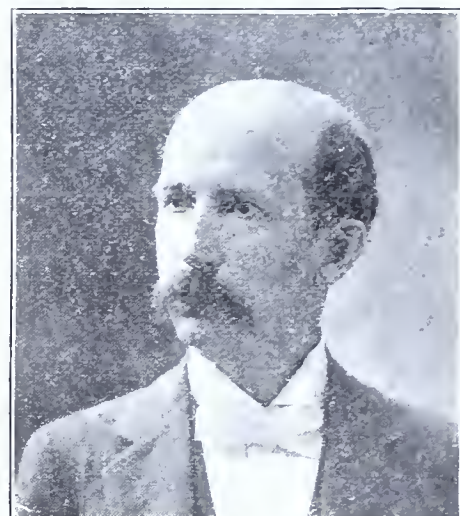
Max Georgii.

Mr. Max Georgii established himself as a patent solicitor in the year 1889. He is a native of Minnesota, but he has spent the greater part of his life in

Washington city. In 1880 he entered the patent office as an assistant examiner of patents under Hon. E. M. Marble and resigned in 1889 to enter the practice of patent law for himself. He graduated from the National Law School in this city in 1886 and the same year was admitted to the bar. He practices before all the courts as well as the patent office and transacts all business connected with patents and other methods of protecting industrial property, making a speciality of printing and the graphic arts, and of electrical and chemical inventions. Both foreign and United States patents are secured. Mr. Georgii has an efficient corps of assistants in his large offices at 606 F street. By an earnest application to the duties imposed in him by his clients and a conscientious and faithful discharge of the trusts imposed in him he has gained one of the largest clienteles in the patent practice in the city.

Wallace Greene.

Wallace Greene, C. E. (Cornell), LL. B. (Georgetown) a member of the bar is a native of Vermont, but has been a resident of Washington since 1887, com-



ing to this city from Illinois where for some fifteen years his attention had been given to patents and patent law exclusively. He is the Washington representative of the firm of Wiels & Greene and Wiels, Greene & Ritner of this city and Chicago of which firm he is a member.

Arthur S. Browne.

Mr. Arthur S. Browne, was born in Washington, D. C. in the year 1860, and is a graduate of Dartmouth College, Hanover, N. H., in the class of 1881. He subsequently took a course of law at the Columbian University of law and graduated in 1883. Mr. Browne was admitted to the bar in 1885 and to practice before the United States Supreme Court in 1889. He engaged in the practice of patent law and soliciting of patents in 1882, and by an honest endeavor to enhance the interest of his clients has built up an extensive practice for himself. For several years past he has been generally engaged as an expert witness in patent litigation.

Joseph Lyons.

Mr. Joseph Lyons was born in Budapest, Hungary, in the year 1843 and studied at the schools of technology in his native city and at Vienna, Austria, completing his studies at the latter institution in the year 1868. As specialties of his general studies, Mr. Lyons devoted himself particularly to German Physics and Electricity.

In July 1869 Mr. Lyons came to the United States where he was successively engaged as engineer and computer on the Board of Public Works in Washington, D. C., in the United States Coast Survey and in the United States Naval Observatory. While connected with the latter institution he also made observations for magnetic declination, inclination and the horizontal component of magnetism for the United States Coast Survey.

In the spring of 1878 he became a member of the examining corps of the United States Patent Office in the class of wood working and fire arms, from which in the fall of 1880 he was transferred to the Electrical Division where he had charge of a variety of classes of invention but particularly of telephony, electric locomotion, and the application of storage batteries, etc.

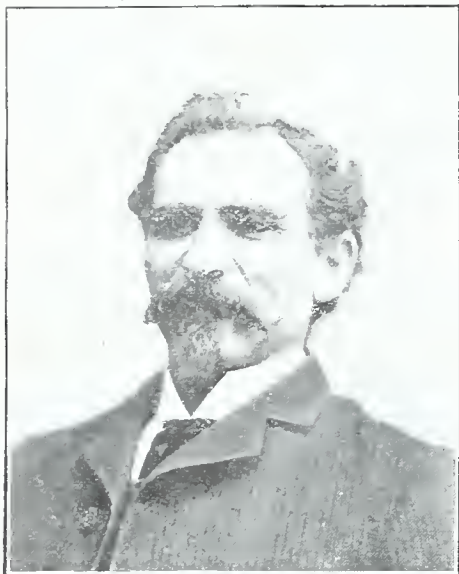
As first assistant examiner in the electrical division, he was frequently in charge of that division as acting examiner.

In the summer of 1885 he resigned his position in the Patent Office and went to Europe upon a tour of inspection and study of the great electrical manufacturing establishments particularly in Budapest, Vienna, Paris and London.

Returning from Europe in May 1886 he engaged in

the business of solicitor of patents and expert in patent causes and in both of these pursuits he has continued ever since.

As showing the character of his business it may be mentioned that among his clients are found such as The General Electric Company; The Westinghouse Electric Company; The Bell Telephone Co; The American Lead Pencil Company; The celebrated Electricians Charles Clamond, Marcel Deprez, Jules



Carpenter and Jules Mercadier, and the Societe Anonyme Pour la Transmission de la Force Par L'Electricite, of Paris.

Frank C. Somes

Mr. Frank Chase Somes is a native of Maine, and a son of Hon. D. F. Somes, who was one of the organizers of the republican party, and was in congress before the war from the district now represented by Speaker Reed. Mr. Somes, settled in Washington, and engaged in the patent practice in 1862, and died in 1888.

Mr. F. C. Somes was educated at Eagleswood Military Academy, one of the leading institutions of that character which were so much in favor during and after the war. He entered his father's office in 1867 and became a partner in 1870 and has been in practice under his sole name since 1878. He took law courses in the Columbian and National law schools of Washington, and was admitted to the bar of the District in 1874, and to the bar of the Supreme Court of the United States in 1880.

After Hon. Samuel S. Fisher—the famous Commissioner of Patents who started a new epoch in patent office history—resumed business in Cincinnati, Mr. F. C. Somes represented him in Washington in legal and technical investigations, and in cases before the patent office.

In the early days of his practice Mr. Somes was largely engaged in procuring extensions of important patents, and in obtaining reissues when reissues could be safely resorted to to strengthen and broaden weak and defective patents. He practiced before the first examiner of interferences, and has been

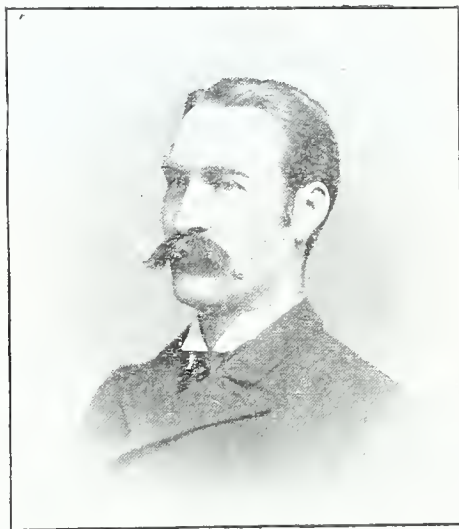


largest number of patents. He is now counsel for a number of corporations who have great confidence in his judgment in legal and technical matters.

Mr. Somes has the combination so essential to the best results in patent practice; a love of the law and a taste for mechanics and the sciences. He has the faculty of getting at the gist of an invention and of setting it out in bold and comprehensive terms.

William A. Redmond.

The subject of this sketch, Mr. William A. Redmond, entered the service of the United States in the Patent Office in 1872 while a boy of fifteen and became a member of the examining corps by hard and conscientious work and a faithful attendance to the duties intrusted to his care. While in this office he attended St. Johns College and the National University and graduated from the latter in the class of '84 and soon after was admitted to practice before the Supreme Court of the District. Mr. Redmond resigned from the patent office in 1885 to engage in the practice of law before the patent office and before the



Solon C. Kemon.

Mr. Solon C. Kemon, was born in Baltimore, Md. 49 years ago and was educated in the public schools of that city and Washington and finished his course in the Bryant and Stratton Business college. He subsequently studied under his father who was for many years librarian of the Smithsonian Institution.

Mr. Kemon entered the service of Munn & Co. (Scientific American,) June 1st, 1866 where he has remained continuously; in December 1894, on occasion of the death of the late Mr. James H. Gridley, whose first assistant he had been for more than twenty-five years, he was made manager of and resident representative of the firm in Washington. He has been untiring in his work and faithful in the discharge of all the details of his duties, and it is his trustworthiness and conscientiousness in his efforts to promote the interest of his firm and their clients that Munn &



Hugh M. Sterling.

Hugh M. Sterling, one of the younger members of the Washington bar, practicing before the patent



office, was born at Washington, D. C., December 16, 1869. His office is in the McGill Building, where he has been for the past five years.

Mr. Sterling acquired the foundation of his education in the public schools of Washington, and graduated from the high school in the year 1888. While at the high school he was honored by a vote of his schoolmates electing him to the office of Editor-in-Chief of the school journal, which was then independent of the faculty.

On leaving the high school his tastes directed him to the profession of the law, and employment was found in the office of the late L. W. Siusabaugh, patent lawyer, and former examiner in the patent office,

Co. have rewarded him with the management of the Washington office. Mr. Kemon was one of the first to join the Washington Patent Law Association and is an ardent supporter of its principles.

Good Words for the "Inventive Age."

The following letter from Mr. Schuyler Duryee, the popular chief clerk in the Patent Office back in the '80's, is indicative of the high standing of the INVENTIVE AGE and shows an appreciation of its efforts in behalf of correct methods in patent office procedure and common honesty in dealing with inventors:

GOLD CREEK, NEVADA, JULY 1, 1897.

Inventive Age Publishing Co.
Washington, D. C.

GENTLEMEN: I have received recently through the courtesy of friends copies of your paper, and it contains so much attractive matter and interesting information that I feel I must subscribe therefor in order to keep in closer touch with the United States Patent Office.

Your June issue containing pen sketches of some of the members of the Patent Law Association was received by me yesterday and the familiar faces therein carry me back to the days when it was my pleasure to meet the gentlemen officially; and that issue could not fail to revive my interest in the patent office and patent practice had it abated in the least during my several years separation therefrom.

It is to be hoped that the efforts of men of character and ability practicing before the patent office will eventually triumph in ridding the profession of those whose sole and only aim has been to catch a new crop of "suckers" (pardon the expression) by false promises and delusive hopes.

The many years of constant and earnest endeavor on the part of the patent profession to elevate it to the plane it merits should and must receive the cordial support and co-operation of all right thinking and high minded men who give the matter the slightest consideration.

I enclose a money order for one dollar for which please send me your paper for one year.

Very truly yours,
SCHUYLER DURYEE.

engaged in interference litigation ever since. He has given a good deal of attention to the more difficult arts, such as knitting and other textile machinery, canning machinery, and electricity, especially as applied to the working of metals. Prior to the expiration of the controlling patents in the clothes wringer business he was attorney for the corporation owning them. He has been for several years attorney for one of the inventors whose name appears in Commissioner Seymour's list of patentees who have taken out the

REPUTABLE PATENT SOLICITORS

- Who have made application to join, or
- who believe in the aims and objects of
- the Patent Law Association.

Maj. Albert E. H. Johnson.

Major Albert E. H. Johnson, the senior member of the firm of Johnson & Johnson, solicitors of patents, No. 637 F Street, N. W., is a native of Virginia, and since early youth he has practiced his profession. In fact he has had perhaps a longer and more varied experience in the patent business than any other practitioner before the patent office in Washington.

His notions of honor and good faith have always been high and his training has been guided by the high standards of those with whom he was employed. He began with Mr. Peter H. Watson, the most able and successful patent solicitor of his time as well as a distinguished inventor. Into his office at that time were coming the greatest patent matters and patent litigation of the day—those concerning the inventions of the reaper and mower, the telegraph and kindred inventions, which were so important that no limit of value could be fixed for them. It was in the great McCormick and Hussay reaper suits, in which Secretary Stanton became the leading counsel, that the Secretary first knew Maj. Johnson.

Soon after the commencement of the rebellion Mr. Watson became Assistant Secretary of War under that mighty War Secretary, Edwin M. Stanton, and Maj. Johnson was appointed a clerk under Mr. Watson. From this position Mr. Johnson was promoted to confidential clerk to Secretary Stanton and was soon after commissioned as Major with the rank of Assis-



tant Adjutant General and assigned to duty with him. In capacity of confidential clerk Major Johnson did also military duty with the Secretary of War. In this peculiarly confidential capacity, which was retained uninterruptedly until Mr. Stanton left the cabinet in 1868, Maj. Johnson made, under the immediate eye of the Secretary, the telegraphic history of the war—the most extensive and wonderful telegraphic history ever made in the form of instant and momentous events of any nation.

He retained this confidential position while General Grant was Secretary of War *ad interim* and also with Secretary Scholfield and with Secretary Rawlings, under whom Major Johnson resigned in 1869 to resume the practice of his profession, carrying a splendid letter of commendation from Mr. Stanton in which it was stated that he had grown up in the patent business under the "distinguished patent solicitor, Peter H. Watson." This important and peculiar confidence was reposed in Major Johnson because of his good judgment, his ceaseless faithfulness and his well bridled tongue—qualities which made his services priceless to Secretary Stanton and to the nation.

Major Johnson has been very successful in his profession and has several large manufacturing houses in the country among his clients, some of whom have been with him steadily for over twenty years. While his chief pride is honorable conduct and faithful service to his clients, his house has a reputation for good work. He never files an application for a patent unless reasonably certain that he will come out with a patent, and when this practice shall become a marked feature of the entire profession, the poor inventor will not be cut at both ends—losing both his money and his patent.

A. Roland Johnson.

A. Roland Johnson, son of Major Johnson and the junior member of the firm of Johnson & Johnson, was educated in the public schools of Washington and the Columbian University from which he received the

degree of Master of Laws. He is a member of the bar, giving special attention to patents and patent causes. This added to the long experience and careful business methods of Major Johnson enables his



firm to maintain a satisfactory standing with its clients.

C. T. Belt.

Mr. C. T. Belt was born in Virginia, having come to Washington when a boy, and after graduating from the public schools, took a six-year course in practical engineering and construction in the Washington navy yard, passing the semi-annual examinations in the several departments at the head of his class, and finally receiving his diploma from the secretary of the navy who pronounced him "excellent in all departments."

He then entered the law offices of Paine (former commissioner of patents), Grayton and Ladd, and afterward Paine and Ladd, and remained with them eight years. While there he was schooled by Gen. Paine in all branches of patent law and practice; during this time procuring all possible experience by appearing before the patent office with and representing the firm on important matters.

By courtesy of the firm, Mr. Belt was permitted during the last two years with them to practice for himself, and so well did he succeed, that he was impelled to resign and open up an office. Instead of being ostracized by his old employers, owing to the loss of his valuable services, he is often consulted by them on matters pertaining to the art in which he has made himself an expert.

By reason of his practical experience, he is capable of grasping at a moment's notice, the mechanism and operation of intricate machinery, and to present the same to the patent office in a knowing manner.

Mr. Belt is a singer of wide local reputation, now being the leader of St. Paul's Chorister choir, in which choir he started as a chorister boy.

He has a list of testimonials from his clients as to his straightforward manner of doing business, his able handling of patent applications, and his prompt



action for the good of his clients, of which he is rightfully proud.

Mr. Belt, with his draughtsmen and assistants, can be found in the Warder Building directly opposite the patent office where he has ample facilities for handling the work of inventors.

CHESTER A. SNOW.

The Letter that Formed the Basis of the \$25,000 Libel Suit of Wedderburn & Co.

Mr. Chester A. Snow, of the patent law and soliciting firm of C. A. Snow & Co., was born at New Castle, Virginia, in 1844, and was educated in private schools and at Bethany College, West Va. At the age of twenty-five he was appointed superintendent of public schools at Newark, Ohio. In 1873 he came to Washington and attended law lectures in Georgetown University, and was admitted to the District bar and to the Supreme Court.

The firm of C. A. Snow & Co., solicit patents on the contingent fee plan. On last New Years they sent the following circular letter to their clients—which was made the basis of a suit for \$25,000 damages by John Wedderburn & Co.

WASHINGTON, D. C., Jan. 1, 1897.

DEAR SIR: With the new year, we send greeting to our clients, those who have tried and proved us. If we can retain the confidence and good will of those who know us, we will be content.

The past year has been remarkable in the patent business. Never before were the woods so full of swindling patent attorneys and agents. Never before have inventors appeared so ready to be taken in and humbugged. Thousands have been duped into paying, indirectly, ridiculous prices for worthless medals, thus making themselves walking advertisements for a bold and unscrupulous adventurer; or have been stimulated by the offer of a prize, at which they have about one chance in a thousand, and for which they and their fellow dupes pay more than one hundred values. Fraudulent sale



agencies pretend to be able to sell patents, and flatter inventors with the promise of fortunes, when they know the invention submitted is not even patentable.

These concerns get their fee in advance, and since they do not have to earn their fee by securing patent, they pronounce everything that is sent them patentable and a "fortune winner," in order that they may lure the inventor to the paying point while he is excited.

The United States Patent Office is clogged with rejected applications. Things that were notoriously old and unpatentable have been filed by these "Fee in Advance Attorneys." They have gotten their unearned pay, and will keep it; the inventor will never get his patent.

We will continue, as for the past twenty years, to solicit patents on the *contingent fee plan*, about which Abraham Lincoln said, in an address to law students: "As a general rule, never take your fee in advance, nor any more than a small retainer. When fully paid before hand, you are more than a common mortal if you can feel the same interest in the case as if something was still in prospect for you, as well as for your client; and, when you lack interest in the case, the job will very likely lack skill and diligence in the performance."

We hope to be favored with your business during the year, as we have been in the past. We do not offer cheap medals or prizes, but we will endeavor always to give you straightforward advice and faithful service.

Sincerely wishing you a happy new year, we remain,
Yours truly,

C. A. SNOW & Co.

Edward G. Siggers.

Mr. Edward G. Siggers, the junior member of the firm of C. A. Snow & Co., is a Virginian by birth,

but has resided in the District of Columbia the greater portion of his life. He is now in his thirty-fourth year. He entered the patent business in 1880, and became connected with the firm of C. A. Snow & Co., in 1882, and was admitted as a member of the firm on February 14th, 1885. He took a course of law at the National University, taking the degrees of L.L. B. and L.L. M., and was admitted to the Bar of the Supreme Court of the District of Columbia in June 1889. Since then, he has taken



the degree of Master of Patent Law, at the Columbian University.

F. T. F. Johnson.

Mr. F. T. F. Johnson, attorney at law and solicitor of patents, of 637 F street, N. W., Washington, D. C., was born at Hagerstown, Maryland. He came to Washington about 17 years ago. He studied law and graduated from the National University, and has since been practicing in this city. He is a member of the bar of the Supreme Court and the Court of Appeals of the District of Columbia; has devoted himself exclusively to the patent practice for the past twelve years. Mr. Johnson has made a specialty of associate work, being the Washington agent of some of the most careful and prominent practitioners before the patent office. As an associate attorney Mr. Johnson



has been very successful. Any lawyer or patent solicitor who desires a good, careful and painstaking associate in Washington could find no one better or more reliable with whom to do business than Mr. F. T. F. Johnson who is conscientious and painstaking in every particular.

Addison G. DuBois.

Mr. Addison G. DuBois, pension and patent attorney, is a native of Hallstead, Susquehanna county, Pa. He received his education in the public schools of his native state and the Columbian University of Washington, D. C. He came to Washington in the year of 1881, and immediately entered the law school of the Columbian University, from which he graduated June, 1884.

He was admitted to the bar of the Supreme Court of the District of Columbia, June 23, 1884 and subsequently to the United States Court of Claims.

Mr. DuBois has been actively engaged in the practice of his profession since his admission to the bar. He has built up an extensive general practice before

the several departments of the government, including the U. S. patent office.

He is an officer in that famous organization, the National Rifles, of Washington, D. C., which was



brought into existence away back in war times, for the defense of the government.

Mr. DuBois enjoys the distinction of having been successful, and he possesses those traits of character that not only insure but deserve success. The extensiveness of his clientage is equalled only by the earnestness of his desire to serve them.

Julian R. Nottingham.

Julian R. Nottingham was born in Washington, D. C., in the year 1846, receiving his education in the



public schools and Gonzaga College of this city, and is the son of William Nottingham, who was, for many years, a well-known contractor and builder of East Washington.

In 1868 he received an appointment in the U. S. Patent Office and in 1875 was appointed chief of the division in which he was employed. In 1876 he was placed in charge of the patent office exhibit at the Centennial Exposition.

Since entering the profession, in 1877, as a solicitor of patents he has had entrusted to his care many important inventions, and has been associated in a number of others.

Abandoned Patent Cases.

A reporter of the Washington Star was recently shown into "the vault" of the United States patent office wherein are stored the hopes and aspirations of many inventors. "The vault" of the patent office consists of a series of rooms and corridors in which the papers in all the abandoned patent cases are filed. When an inventor has filed his claim and from poverty which prevents him from prosecuting it, or from a change of opinion regarding the merits of his device, decided to press it no further the whole case is sent to the abandoned files room. Every year since the organization of the patent office the contents of that room have been added to. The rules of the patent office require that these files shall be kept absolutely secret, and no one is permitted to pass the wooden gate leading to them, except a small number of trusted employees. What thoughts of genius lie buried in the vault, what inventions are there indicated no one knows, and no one can know. For all the world knows the missing link in many a great invention may lie hidden in the vault. Thousands of cases are there, each year being covered by a heavier layer of dust. It occasionally occurs that an inventor who has abandoned his claim for a patent revives his case and secures a patent, but that is not often.

Conscienceless Patent Agents.

The following from the editorial columns of the Easton, (Pa.,) Daily Free Press, is a fair sample of the awakening of the press of the country to the scandalous practices indulged in by some attorneys to the injury of the inventor and the patent system:

"It is not remarkable that a bill has been introduced in congress imposing a heavy fine or imprisonment upon alleged patent attorneys who offer prizes and medals as an inducement to apply for patent. A more taking scheme for obtaining money has seldom been invented. Thousands have been caught by it and have lost, not only the money they have paid the attorney and the government, but, in a jack o'lantern pursuit of fortune, in a promised but never to be obtained patent, have stopped work and even mortgaged or sold their property. The aggregate misery from this source is pathetic to contemplate.

These attorneys have advertised far and wide that ideas are patentable and have a commercial and marketable value—a most delusive and hurtful deception. The lists of "patents wanted," which they send to stimulate invention, as a matter of course, embrace classes in which there are already from 10 to 100 patents granted. Indeed, it is impossible to print a list of 100 inventions without mentioning at least ninety-nine that have been each covered by many patents.

It is kindness on the part of the government to refuse the grant of patent, as it does in nine cases in ten, to these deluded applicants, for the grant of a flimsy, worthless patent for an almost obsolete device would only involve the owner in further fruitless expense.

All these attorneys have so-called sale agency annexes, and, under the pretence of being able to sell the patent, still further fleece the poor men and women by getting their money for advertising. Of course, they never sell, for the patents they procure are weak and worthless, and no one posted in the class of invention to which they pertain would accept them as a gift.

And the Phillipsburg (N. J.,) Post adds:

The time is overripe for an exposure of the frauds that are perpetrated through the United States patent office. Green and gullible people are persuaded that they have invented a fortune-winning device, in some clumsy and obsolete mechanism. It is a blot on the United States post office department that the mails can be used to circulate the deceptive circulars of fake patent attorneys. It is a blot on the United States patent office, that it can be used as an accomplice in elaborate and adroit robbery. It is the press' duty to do all that it can to expose the bold and brilliant adventurers, who are swindling men and women all over the country, through the medium of the patent office and the post office.

The remedy must be in an outraged public sentiment which will appeal to congress to pass the Hansbrough bill. A further remedy will be for the thousands who have been deceived to write to Hon. Benjamin Butterworth, commissioner of patents, with a brief statement of the facts. It is humiliating to every American citizen to know that our own is the only country in which these outrages can be perpetrated. In France, England or Germany, the perpetrators would soon be serving time.

Interdependency of Inventions.

The advent of important and valuable inventions is often dependent, not upon the brilliant inspiration of some individual inventor, but upon the general and gradual advance of the state of the art to which they belong, making their occurrence not only possible, but almost inevitable. The bicycle is an excellent example of this kind of growth in mechanical construction, since, while it is one of the most important things, both mechanically and commercially, which has ever been produced, it owes its development to the parallel improvements in metal and rubber working without which it could never have existed at all, in the modern sense, or to any extent. The clumsy wooden velocipede would always have remained a useless toy, had not the introduction of drawn steel tubing made the construction of a light, and yet strong, frame possible, while the original leather tire of Dunlop could never have led to the practical application of the pneumatic principle without the substitution of the rubber construction which only the advances in rubber manufacture made possible. This is but one instance of what is apparent in many other lines of work, and there is little doubt that, if the patent records of the past fifty years were thoroughly studied by competent specialists, many inventions, which at the time of their conception were failures, simply because of the impossibility of executing the ideas, would now be found both practicable and valuable.—*Cassier's Magazine.*

INVENTORS may depend upon the reliability of attorneys whose cards appear in the columns of the INVENTIVE AGE.

PATENT OFFICE NOTES.

Patent Office Revenues Increasing.

Notwithstanding the hard times and the general depression in all branches of business, the inventive mind has been especially active during the past year and the revenues of the United States patent office have been materially increased, as will appear from the following figures:

From January 1st, 1896 to June 15th, 1896 there were filed in the patent office, 21,021 patent applications, 44 re-issues, 842 designs, 1,228 caveats, and 790 trade-marks. For the like period of 1897 there were filed, 22,320 applications, 43 re-issues, 1,096 designs, 1,110 caveats and 836 trade-marks. It will be seen that with the exception of caveats and re-issues there was a decided increase in each class of cases filed, the net increase being 1,552, or more than seven per cent, and it should be remembered that the applications filed in 1896 exceeded any previous year in the history of the patent office by more than seven per cent. The government's revenue from fees for applications alone has increased during the five-and-half months of the year, \$19,545, indicating an increase for the whole year of \$40,000.

The total number of patents, re-issues and designs issued, and trade-marks registered, shows a proportionate increase for the period named.

	1896	1897
Patents.....	9,452	10,395
Re-issues.....	28	31
Designs.....	594	752
Trade-marks.....	790	836

The increased revenue from patents, etc., issued is \$20,010, which indicates a total increase for the year of about \$40,000.

The sales of printed copies of patents have increased more than 100 per cent. As the revenue to the patent office on this item during 1896 was \$92,556.31 the increase during 1897 will double that sum. It is safe to estimate that the patent office receipts will be swelled about \$150,000 in 1897 over 1896. This additional burden has been carried without any material increase in the clerical force of the patent office, but it is believed that the needs of the service require, and certainly those who contribute this large revenue have a right to demand, such additional examiners and clerks, as will make possible the prompt and most efficient handling of this work. The great increase in the revenues from the sale of printed copies of patents since the price has been reduced to five cents per copy, indicates that a reduction in the fees in applications would have a like effect in the number of applications filed, so there need be no hesitation on the part of the commissioner of patents on account of fear of loss of revenue, in recommending such reduction.

Important Decision of the Commissioner.

The commissioner of patents has rendered a decision in a series of cases which modifies the established practice of the office, but will be welcomed and approved by the profession. Since 1887 Hercules Sauche has been trying to get a patent on the idea involved in the so-called "electric belts," the use of which it is claimed is beneficial or curative in many forms of diseases. The application was rejected by the primary examiner, the examiners-in-chief and the commissioner on the ground of inoperativeness and lack of utility. Evidence was introduced to show that the device did operate and that as a matter of fact the device did effect cures, the affidavits of persons cured being introduced. Upon a rehearing, the application was allowed, but was withdrawn from issue and again rejected by the assistant commissioner of patents on the ground that the invention was not useful. The evidence was disposed of by the assertion of an opinion that while the affiants undoubtedly testified in good faith, they were cured by the agency of the device, the cures were in reality the result of mental processes growing out of the imagination. In a review of the case by Commissioner Butterworth, he holds that the evidence of the utility of the invention outweighs the theory that it is inoperative or lacks utility and that the question of degree of utility is not for the patent office to decide. Four applications are favorably decided and the patents will issue. Mr. Jas. L. Norris represented the applicant.

Brieflets.

The rooms of the assistant commissioner just at present are inundated with a flood of applications for patents which were filed by a well-known agent, all of which have been rejected as the subject matter involved is covered by patents. These cases are being classified for use in a hearing which will be held in the patent office before long to determine among other questions, whether an attorney who frequently and habitually files applications on in-

ventions which are clearly and notoriously old, is not guilty of such gross misconduct as to subject him to disbarment from practice before the patent office.

* * *

Everyone interested in the work of the patent office will be glad to know that the building which is now tenanted by that office together with the land office and part of the Indian office, will in the near future be given over exclusively to the officials of the patent office. With the increased space which this change will afford it is believed ample and much needed accommodations will be made for attorneys.

* * *

An important order recently issued by the commissioner requires that hereafter all changes in drawings must be made in the examiners' rooms upon written application by the inventor or his attorney. The written consent of the examiner must first be obtained, and blue prints filed in the case.

* * *

Commissioner Butterworth is of the opinion that he should have at least twelve more examiners to enable him to properly handle the work of his office. If the increase of the examining corps depended on the attorneys, he would have it at once.

* * *

Upon motion of Judge Wilson, counsel for John Wedderburn & Co., Commissioner Butterworth granted the latter an extension of one week in which to answer the charges of "gross misconduct," the hearing to take place on Saturday, July 3d at 10 a. m.

* * *

In April last Frederick A. Lehman, the patent attorney, published, among other things, the following: "To the patent profession: I am about to prefer charges before the patent office against John Wedderburn." A suit has been filed by Wedderburn & Co., against Mr. Lehman, claiming the sum of \$25,000 for libel. The complainants claim to have been greatly damaged by the publication of such an inference of fraud and unprofessional conduct on their part. On this basis Wedderburn & Co., will have grounds for several times this amount if the awful charges made by the patent office are disproved.

Progress of Science in Sixty Years.

The Leeds (Eng.) Mercury of June 5, published several columns of replies from eminent Englishmen to the question, "What do you consider the most striking characteristic of her majesty's reign?" The replies were by no means similar, but the greatest number united in the opinion that the advance of science was the most remarkable characteristic. The Duke of Westminster, Lord Armstrong, the head of the great engineering works at Elswick, Colonel Sanderson, M. P., and Admiral Field, regard the development of electricity as the most important achievement. Colonel Sanderson says: "Scientific progress is to my mind the chief and most wonderful characteristic of her majesty's reign. Its two most remarkable triumphs—the discovery of the laws which govern force, taking the shape of electricity, magnetism, and heat and light; next the strides made in the steam-engine, which has revolutionized locomotion. Thus the peoples of the world are brought into close contact, and social conditions entirely changed." Mr. W. E. H. Lecky: "The simultaneous growth of democratic politics, theological heterodoxy, scientific discovery, and imperial expansion." James Bryce: "The number and magnitude of the changes in human knowledge, human thought, and human society which it has witnessed."

A time lock for tobacco boxes, recently patented by Grant W. Smith, of O'Neill, Nebraska, is designed to control the supply of chewing or smoking tobacco carried by the user of the weed, and enable one who so desires to limit himself in its use. The victim of the tobacco habit may regulate the mechanism so that he can have access to the tobacco in the box at stated times only, and thus, in the words of the inventor, "control his appetite therefor and resist inclination to its inordinate use;" so that, "by gradually increasing the length of time between such acts of indulgence, the habit of tobacco chewing and smoking may be greatly restricted, and cured in course of time, as its effect on the system is gradually diminished."

In a new incandescent vapor lamp the oil is first raised to heated tubes to be changed into gas by air pressure, the tubes being heated by the flame of the lamp and the gas expanding to force the oil into the tubes in place of the air; the flame is surrounded by a hood or mantle to give a white light.

DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Recent Court Decisions.

The U. S. Circuit Court, Southern District of Ohio in the case of Potts & Co. v. Creager et al decides that patents Nos. 322,393 and 368,898 to Potts are void for want of novelty, there being no invention in adapting a mill for grinding or grating apples to the purpose of disintegrating and shredding clay where the only change required was the substitution of bars of steel running across the face of the roller parallel with the axis in place of rows of thick steel knives.

The Court of Appeals, Third Circuit, *in re Adams v. The Tannage Patent Company*.

Where the Court of Appeals has decided that a patent is valid its decision should be regarded as final until sufficient reason for departing from it shall be made to plainly appear, and the patentee should not, upon a motion to dissolve a preliminary injunction, be deprived of the advantage he holds as the result of such a decision upon anything less than thoroughly convincing additional proofs.

The objection that the plaintiff is not entitled to maintain this suit because it does not itself manufacture is without force. Its right to sue for the protection of its licensees is unquestionable.

The Circuit Court, Northern District of Illinois *in re Gates Iron Works v. Fraser & Chalmers*.

PATENTABILITY—FUNCTIONAL CLAIM.

A cylindrical journal-bearing provided with a conical journal obliquely placed, so that the surfaces of the two have a line of contact, is patentable over a ball-and-socket bearing in which there is but a point of contact, and a claim therefor does not express merely the function of the machine.

EQUIVALENT—INFRINGEMENT.

A claim for a cylindrical journal-bearing provided with a conical journal obliquely placed, so that the surfaces of the two have a line of contact, is infringed by the equivalent structure of a conical bearing and a cylindrical journal similarly placed.

VALIDITY—SUITS IN DIFFERENT CIRCUITS.

The question whether or not a claim is invalid for want of novelty or utility depends on the evidence in the particular case, and the fact that in a suit in one circuit, upon probably different evidence, a patent was not sustained is no ground for holding it invalid in a suit in another circuit.

The U. S. Circuit Court, Eastern District of Missouri, *in re Brill v. St. Louis Car Company*.

PATENTS—MONOPOLY—INJUNCTION.

The monopoly under a patent does not commence until the patent issues. An inventor has no right to injunctive relief while his application for a patent is pending in the Patent Office.

PROOF OF INFRINGEMENT.

The fact that a defendant made and sold a patented article before the patent issued does not prove or tend to prove infringement.

EVIDENCE.

The fact that a defendant was using an article four or six months before a patent on the article issued and the further fact that the defendant did not respond to a notice advising him of the issue of the patent is not sufficient to prove infringement or an intent to infringe.

PRESUMPTIVE EVIDENCE.

It is presumptive evidence of infringement when a defendant offers no proof in support of his answer of intention not to infringe. The burden of showing infringement rests on complainant, and the law and well-settled practice forbids this burden being shifted upon the defendant.

Circuit Court, District of Connecticut *in re Britton v. White Manufacturing Co.*

CLAIMS FOR SEPARATE FEATURES.

Separate claims for the entire design and for its separate parts may properly be allowed in one patent. (*Dobson v. Carpenter Co.*, 114 U. S. 439.)

CLAIMS—LIMITATIONS BY STATEMENTS OF COUNSEL.

The Patent Office having allowed the separate claims in one patent, a mere statement by counsel, during the prosecution of the case, of a reason why it was desirable to include them in a single patent does not estop the patentee to claim what was clearly granted him under said patent.

PRINTED PUBLICATION—TRADE CIRCULAR.

A mere trade circular never actually published or intended for general use or accessible to the public is not such a printed publication as would anticipate a patent, although it may have been for a number of years in the possession of a witness.

Richards & Co., patent solicitors of New York, are the authors of an interesting little brochure on "general information relating to designs," and the suggestion is made to patent solicitors that more attention be paid to the registration of designs, which ought to be made a profitable branch of patent law practice. It is also cited that in the European countries the subject of designs is receiving the attention it should have. In 1896 only 1,500 applications were filed in the United States while in Great Britain in 1895 21,417 were filed.

A LITTLE booklet from the Best Telephone Manufacturing Co., of Baltimore, Md., gives one an idea of how telephones are made, by accurate reproductions from photographs of interior views in the factory and of street scenes where conduits are being laid. The manufacturers of the "Best" telephone make great claims for their instruments which seem to be substantiated by the experience of those who are using them where systems have been installed.

DIRECTORY OF PATENT SOLICITORS.

Alphabetical list of practitioners of good standing before the Patent Office, and whose experience, skill, and professional integrity commends them to the favorable consideration of inventors, manufacturers, promoters and others. All are members of the Patent Law Association, of Washington, D. C., having for its object the application of honest and correct methods in Patent Law Procedure and the encouragement of legislation calculated to protect American inventors and dignify and elevate the Patent System.

ALEXANDER, THOMPSON H.—
607 Seventh st., Washington
ATKINS, JOSEPH L.—
Wash. Loan & Trust Bld'g, Washington
BACON, L. SEWARD—
614 F st., Washington
BAILEY, MARCELLUS—
501 F st., Washington
BALDWIN, WM. D.—
25 Grant Place, Washington
BARTLETT, WALLACE A.—
cor. Seventh and F sts., Washington
BEALE, J. FORBES—
McGill Bld'g, Washington
BENJAMIN, FREDERICK—
Warder Bld'g, Washington
BLISS, H. H.—
705 G st., Washington
BROWNE, ARTHUR S.—
Wash. Loan & Trust Bld'g, Washington
BROWNE, FRANK L.—
Pacific Bld'g, Washington
CALVER, HENRY—
501 F st., Washington
DODGE, WM. C.—
9th & G sts., Washington
DOOLITTLE, WM. H.—
Atlantic Bld'g, Washington
DOWELL, ARTHUR E.—
607 Seventh st., Washington
DOWELL, JULIAN C.—
Wash. Loan & Trust Bld'g, Washington
DYER, FRANK L.—
National Union Bld'g, Washington
DYER, LEONARD H.—
National Union Bld'g, Washington
DYRE, WM. E.—
McGill Bld'g, Washington
EDSON, JOSEPH R.—
927 F st., Washington
FRASIER, ROBT. T.—
National Union Bld'g, Washington
FISHER, ROBT. J.—
614 F st., Washington
FISHER, SAMUEL T.—
Atlantic Bld'g, Washington
GEORGH, MAX—
600 F st., Washington
GOLDSBOROUGH, JOHN K.—
McGill Bld'g, Washington
GREENE, WALLACE—
McGill Bld'g, Washington
HALSTEAD, JOHN J.—
McGill Bld'g, Washington
HENDERSON, WM. G.—
501 F st., Washington

HOWARD, GEORGE H.—
McGill Bld'g, Washington
JANNUS, FRANKLAND—
Atlantic Bld'g, Washington
KEMON, SOLOM C.—
Pacific Bld'g, Washington
KNIGHT, HERVEY S.—
McGill Bld'g, Washington
LYONS, JOSEPH—
1003 F st., Washington
MARBLE, EDGAR M.—
Wash. Loan & Trust Bld'g, Washington
MCGILL, J. NOTA—
Atlantic Bld'g, Washington
MCINTIRE, WM. C.—
614 F st., Washington
MYERS, WM. H.—
1006 F st., Washington
NEALE, CHAS. A.—
Wash. Loan & Trust Bld'g, Washington
NORRIS, JAMES L.—
501 F st., Washington
PENNIE, JOHN C.—
McGill Bld'g, Washington
REDMOND, WM. A.—
McGill Bld'g, Washington
RITTER, FREDERICK W. JR.—
McGill Bld'g, Washington
ROBERTSON, THOS. E.—
605 Seventh st., Washington
ROBERTSON, T. J. W.—
605 Seventh st., Washington
ROGERS, WALTER F.—
Atlantic Bld'g, Washington
SEYMOUR, HENRY A.—
913 F st., Washington
SOMES, FRANK C.—
514 F st., Washington
SPEAR, ELLIS—
1003 F st., Washington
STERLING, HUGH M.—
McGill Bld'g, Washington
STOCKING, EDGAR B.—
611 F st., Washington
STURTEVANT, CHAS. L.—
Atlantic Bld'g, Washington
WHITAKER, JESSE H.—
619 F st., Washington
WHITTLESEY, GEORGE P.—
Atlantic Bld'g, Washington
WIGHT, LLOYD B.—
25 Grant Place, Washington
WILKINSON, ERNEST—
Atlantic Bld'g, Washington

DEPARTMENT NOTES.

Under this heading will appear the latest orders, amendments to the rules of practice before the Patent Office, list of disbarred attorneys, and bulletins of instruction issued from the Patent Office for the observance of patent attorneys and information of inventors.

Order in Relation to Blue Prints and Drawings.

The full text of the order of the Commissioner of Patents upon the matter of Drawings and Blue Prints is as follows:

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or upon the request of applicants, the office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files. The examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

Official Certificates of Title.

The commissioner orders that all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently completed digest of irregular assignments.

Attorneys Disbarred.

List of attorneys disbarred since last publication:

George W. Barber, Sr., Akron, Ohio.
R. M. Buck, Paw Paw, Mich.
Geo. W. Sabine, Danforth, Me.
Richard H. Emery, Morrisville, N. Y.
J. B. Denworth, Williamsport, Pa.
Geo. W. Sparling, Whigville, Ohio.
James P. Overton, Oglesby, Tenn.
Davis McIntyre, New Berlin, N. Y.

Regulating Foreign Applications for Patents.

The following, under date of May 11, 1897, issued from the state department to the diplomatic and consular officers of the United States:

When an applicant for a United States patent resides in a foreign country, the oath required by statute (Revised Statutes, section 4892) may be made before any minister, charge d'affairs, consul, or commercial agent holding a commission under the government of the United States. It has come to the knowledge of the department, through a letter from the Secretary of the Interior, dated the 4th instant, that foreign inventors sometimes write their applications in a foreign language on sheets which are afterward placed between or in a double sheet containing blank forms for the petition and preamble of the specification at the beginning and blank spaces for signatures to the specification and for the oath at the end. These blanks, with the inclosed sheets of description, are then sworn to before some duly authorized person and forwarded to a solicitor in this country. The latter will then detach the written sheets, make a translation of them, place the sheets thus prepared, instead of the original sheets, between the leaves of the double sheet, and forward the illegal application thus formed to the commissioner of patents.

In order to avoid as much as possible the commission of this offense, you are directed, when administering the oath required in applications for patents in the United States, to pass a ribbon one or more times through all the sheets of the application and to bring the ends of such ribbon together under the seal before the latter is affixed and impressed.

B. & O. Summer Books.

The Baltimore & Ohio Railroad has just issued a very handsome book for summer travel, describing the mountain resorts, springs and baths located on and adjacent to its lines; also the various watering places on the Atlantic

Coast. The routes for reaching them are set forth in a comprehensive and clear manner. The book is printed on fine paper, beautifully illustrated, and will prove of valuable assistance to parties contemplating a summer tour.

Copies can be had by applying to various B. & O. agents or by sending 10 cents in stamps to cover postage to J. M. Schryver, General Passenger Agent, Baltimore, Md.

Women Inventors.

The patent office has compiled a list of women inventors—published in one original volume including list granted from 1790 to July 1, 1888 and two appendix volumes. The INVENTIVE AGE will forward the three volumes to any address for \$1.

Changes in Classification.

The following transfers of work are hereby directed:

Class 120, Stationery, from Division V to Division II.

Class 56, Harvesters, from Division VII to Division V.

Powers of Attorney.

Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Disbarred Attorneys.

Any person who has been disbarred from practice before the patent office by order of the commissioner will be denied access to the files of the office, either in his own capacity or as the representative of any other person or firm.

Specifications and Drawings

Of any patent sent to any address on receipt of ten cents. Where entire sub-class list covering any particular field of invention is desired, 5 cents each.

We will allow agents a commission of 20 per cent on clubs of ten or more subscribers accompanied by \$10 cash and give an extra prize of \$5 to the person who sends us the largest number of cash subscribers in excess of ten, during the period ending Oct. 1, 1897.

Niagara Falls via Pittsburg.

The B. & O. R. R. has arranged an excursion to Niagara Falls, via Pittsburg and Buffalo. Special Express will leave Washington 10 o'clock A. M. Wednesday, July 7th, crossing the Allegheny Mountains in daylight. The train will run through solid from Washington to Niagara Falls, via P. & L. E. R. R., L. S. & M. S. R. R. and N. Y. C. R. R. Tickets good for return five days from date of sale.

Passengers from local points, at which the Special is not scheduled to stop, can take local train to nearest point connecting with the through Express.

THERE has just been issued by the Clayton Air Compressor Works, of New York, a complete catalogue of air compressors and compressed air appliances. This catalogue is the most complete work of the kind ever attempted.

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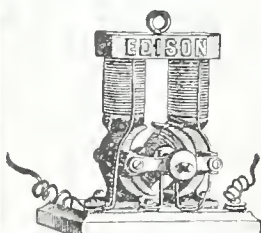
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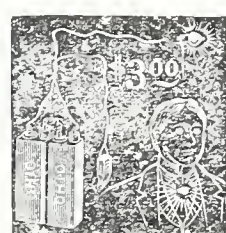
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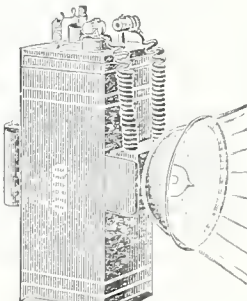
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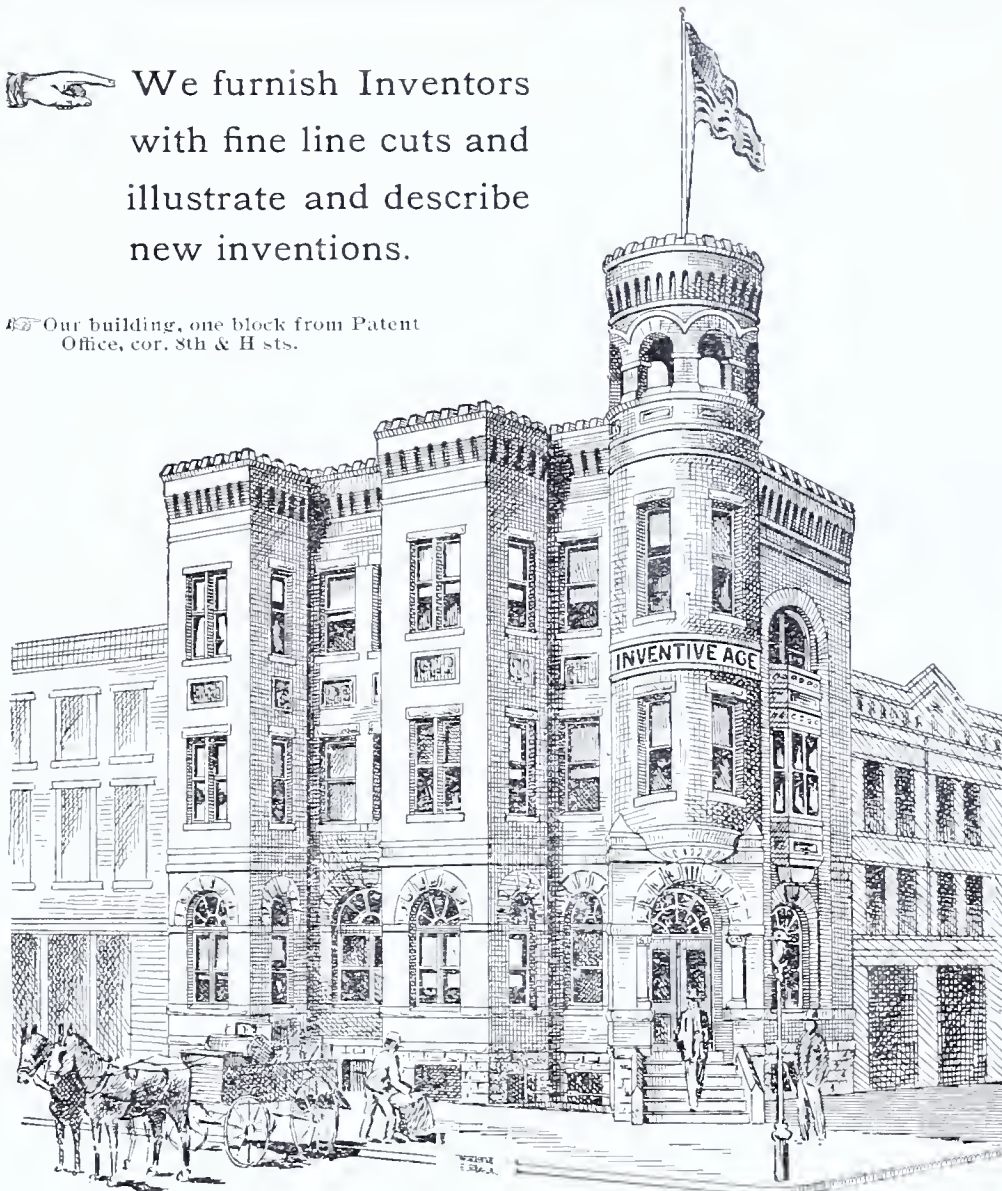
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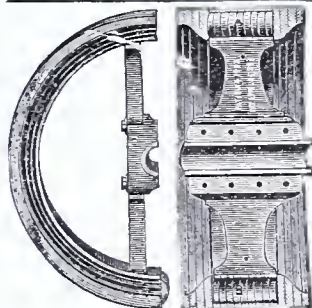
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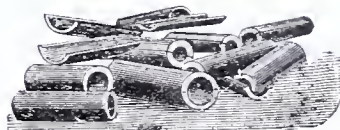
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THE CHARGES AGAINST WEDDERBURN.

Hearing Begun Before the Assistant Commissioner of Patents in the Case of the firm of Wedderburn & Co. to Show Cause Why it Should Not be Disbarred.

Testimony Showing that Imperfect Searches and False Representations Were Made---Value Placed on Inventions and Inventors Advised to Take Out Foreign Patents After Rejection in This Country.

INVESTIGATION LIKELY TO EXTEND TO OTHER ATTORNEYS.

The Hearing.

In the matter of the hearing before the Commissioner of Patents into the charges preferred and pending against John Wedderburn and John Wedderburn & Co., (see *INVENTIVE AGE* for June) Charles G. Stauffer appeared for the patent office and the respondents appeared in person and by E. H. Bond as counsel. Mr. Bond objected to proceeding at this time (July 3,) because of the absence of Judge Jere M. Wilson, senior counsel for respondents. The objection was overruled whereupon the patent office, by Mr. Stauffer its attorney, stated its case.

The answer of the respondent (see *INVENTIVE AGE* for July) was read by Mr. Bond who again objected to proceeding with the case in the absence of Judge Wilson.

Counsel for patent office made the following offers (exhibits) in evidence, to each of which counsel for respondents objected.

1. Copy of charges.
2. Wedderburn's answer to Rusktaeschel complaint.
3. Instrument entitled "A New Departure" by Wedderburn.
4. The circular issued by respondents entitled "1,000 Inventions Wanted."
5. Copy National Recorder for Nov. 28th, 1896.
6. Application and letters in case of August Sooker.
- 7-13. Applications and letters in sundry cases.
14. List of particularly objectionable cases—298 in number—also the files and drawings in these cases.
15. The files and drawings in 1812 cases referred to in report of examiners as being devoid of patentability—list of which cases are now believed to be in possession of counsel for respondents.
- 15½. The charges of F. A. Lehman.
- 16-18. Attorney's exhibits and letters of Wedderburn & Co. to certain parties.
19. Post office department ditto.
- 20-23. Letters of Wedderburn & Co., to certain parties.
24. Post office department ditto.
25. Complaint and affidavits of A. A. Sackett and James Slater.
26. Duplicate copies of report of chief clerk to Hon. John S. Seymour commissioner of patents and reports of primary examiners in 38 cases.
27. Report of office committee May 3, 1897 to the honorable commissioner of patents (see *INVENTIVE AGE* July 1897).
28. Sundry reports of commissioner of patents.
- 29-67. Files, drawings, references, blue prints, letters, etc., in sundry cases from Wedderburn & Co., to clients and clients to respondents and from and to the commissioner of patents by respondent's clients.
- 67½. Summary from S. W. Stocking and J. H. Brickenstine, examiners-in-chief, of the appeals, which are of record, objection being filed by respondents; also letter of Hon. S. T. Fisher to the commissioner of patents dated July 2, 1897.
- 68-69. Same as 29-67.

Objection was made at this point by attorney for respondents to remarks interposed by attorneys not representing the patent association under order of the commissioner of patents.

70-91. Same as 29-67.

Objection was made by respondent's attorney to

the introduction of any papers or letters specified in the foregoing cases for the reason that they are not proven to have been written by the person by whom they purport to have been written, and also because they contain simply the unsworn statements of the writers, which statements are not in evidence.

DUPLICATE INVENTIONS.

92-113. Duplicate inventions (applications filed for inventions not patentable and a short time afterwards filing one or more applications for substantially or precisely the same inventions) files, drawings, references, etc., in sundry cases.

114-124. Same in appeal cases.

125. Sundry issues National Recorder and other papers. Objected to by attorney for respondents on the ground that it has not been shown that respondent is connected in any way with said papers.

Counsel for patent office, stated that expression "Wedderburn letters" whenever used is intended to include circulars of National Recorder.

126-117. Same as 114-124.
128. Typewritten copies of orders dated June 17, 1897.
129. "How to get a patent".

ACCUMULATION OF EVIDENCE AGAINST WEDDERBURN.

Adjournment was taken without date and pursuant to notice, proceedings were resumed before assistant commissioner Greeley on July 19.

Counsel for respondents stated that by "mutual consent it is agreed that counsel for respondent may avail themselves of all proper objections to any and all papers and other evidence introduced on the part of the prosecution, the same as if specific objections were made and exceptions properly taken at the proper time heretofore or hereafter and like object to the introduction of any cases of which no specific notice has heretofore been given, ex parte affidavits, or any oral testimony in any form as to which the respondents have not the opportunity to cross examine."

Counsel for patent office offered further exhibits numbered 130 to 143 including certified copy of application for incorporation and of charter of John Wedderburn & Co. A communication endorsed "C. A. Snow & Co." respecting the disbarment proceedings and letters accompanying said communication; affidavits of Benjamin, Gillis, Gowans, Snyder and Elliott.

On July 24, the hearing in the case was resumed and attorney for respondent objected to proceedings being heard by any other person than the commissioner of patents.

Attorney for patent office stated that it was the usual custom for such proceedings to be heard before the assistant commissioner.

The attorney for the patent office then stated that "on March 29, 1895, five gentlemen of this city obtained articles of incorporation (Wedderburn & Co.)

from the state of Virginia. This company was organized for the purpose of prosecuting claims against the government and securing and gathering in patent cases trade-marks and designs—the principal vocation of the company seems to have been the latter. During the ensuing two years they filed in this office 3,763 applications."

COMPLAINTS TO P. O. DEPARTMENT.

"On March 3, 1897 the attorney general of the post office department sent to this department stating that suggestions had been made that John Wedderburn & Co., were engaged in using the mails in a scheme to defraud, and asking for a report from the commissioner of patents. The commissioner of patents directed the chief clerk to gather certain data from the office which he did and embodied in a letter to the post office department."

The data which the chief clerk gathered was to the effect that of the 3,763 applications filed by said firm 1812 were, in the opinion of the examiners in charge thereof, without patentable novelty.

The attorney stated further that a committee was thereupon appointed by Commissioner Benjamin Butterworth which made a report in due time, (see *INVENTIVE AGE* July). Thereupon the commissioner ordered the assistant commissioner to prepare charges and copy of same was served upon the respondents June 14, 1897. The attorney for respondents objected to the proceedings charging irregularity, as respondents had not as yet introduced any evidence.

Objection was particularly made to the making of any argument at this time, by the attorney for the patent office, which position was sustained by the assistant commissioner.

REVIEW OF CASES FILED.

The attorney for the patent office then reviewed the numerous cases introduced in this cause as evidence on the part of the patent office.

Particular attention was called to the case of John E. Tuttle, the attorney for the patent office maintaining that "any one who knows anything about making searches, looking into priorities, ought to have sighted this reference when he wrote certain letters to Mr. Tuttle. This is one of the cases on which one of the complaints was based. I don't want to read the complaint now, I want to read some of the letters in this case not because the letters in this case are particularly striking over letters in other cases, but because they illustrate the methods which this company employed in securing and gathering in their clients (counsel read letter of Tuttle of June 22, 1896, also one in response thereto and letters of July 7 and 21st). Notice how this letter in regard to foreign patents is written, and how the client is lead on to believe his invention is patentable and that all he has got to do is to offer it to some big railroad corporation and they will use it probably to bolt their plates and rails and he will ride in his carriage, and by putting out a little invention is worth millions—that is the kind of dream this man had probably."

LAXNESS IN PRELIMINARY SEARCHES.

After recess hearing in the case was continued. Mr. Stauffer, for the government offered a series of duplicate applications, filed by John Wedderburn & Co.,—meaning by "duplicate inventions" applications filed for inventions not patentable, and a short time afterwards filing one or more applications for substantially or precisely the same inventions, knowing in view of the references cited in the first one that the subsequent ones were not patentable. Cases specifically mentioned and made part of the exhibits, were: Gray and English, perforated envelopes, Ganges, Collins and Fenn breakable neck bottle; Bell and Henn, device for lid of slop jar;

(Continued on page 117.)

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WASHINGTON, D. C., AUGUST, 1897.

CONTINUATION of Wedderburn investigation in next issue will review specific cases in detail where misrepresentations to inventors are alleged.

THE bureau of statistics, department of state, will be known hereafter as the "bureau of foreign commerce," the former name not properly denoting the functions of the bureau.

As might be expected sundry special feature articles are laid over till next issue because of the fact that just now the patent investigation proceedings are of paramount importance.

JAMES F. BABCOCK, inventor of the famous fire extinguisher bearing his name, died on the 20th ult. at his home in Dorchester, Mass. Mr. Babcock had also achieved some fame as a lecturer and was, at the time of his death, still in the prime of life, being only 53 years old.

COMMISSIONER OF PATENTS BUTTERWORTH is endeavoring to enhance the interests of inventors generally by a thorough overhauling of the methods in vogue among patent attorneys throughout the United States and bring the practice before the patent office up to the standard of the courts. His new rule will have a tendency to do much toward this end.

THE INVENTIVE AGE guards its advertising columns against announcements or advertisements from irresponsible and unreliable attorneys, and readers of the AGE who have knowledge of the wrong doing of any patent agents or patent attorneys will confer a favor on the publishers and do a service to their fellows by submitting such information to the INVENTIVE AGE.

THE return of fifty or more miners from Alaska last month, with bags of gold and wonderful stories of the richness of the mines, has turned the minds of many in that direction and every steamer now leaving for the frozen regions of the midnight sun is heavily laden with prospectors. The find promises to eclipse the great excitement in California in 1849, and the sudden acquisition of millions of new gold to the money volume must have a stimulating effect in all channels of trade and industry.

ASSISTANT COMMISSIONER OF PATENTS GREELEY, before whom the Wedderburn & Co., hearing is going on, and Messrs. Stauffer and Winter, the attorneys for the patent office, deserve much credit for the patience and thoroughness in which they are going into the merits of this now celebrated Wedderburn case. It is generally conceded by both sides to the case that the rulings of the assistant commissioner are eminently fair and just and

that the attorneys for the patent office are exceedingly considerate.

Methods of Patent Attorneys.

The investigation of Wedderburn & Co., patent attorneys, has become a celebrated case and one in which inventors and patent attorneys all over the country are taking much interest. The INVENTIVE AGE is endeavoring to cover the proceedings fairly and exhaustively. Whatever the result may be the investigation is a step in the right direction and calculated to do more good towards raising the standard of patent procedure than any act of any commissioner of patents for many years. Enough evidence has been adduced to show that there has been unjustifiable laxity in the management of the enormous business of Wedderburn & Co., and an inexcusable disregard for the best interests of the inventors. What is true in the case under investigation is doubtless true of other patent firms, and it is understood that it is the intention of Commissioner Butterworth to follow the Wedderburn case with others and promulgate such rules and regulations as will improve the patent system and protect inventors, to the extent at least, of insisting on correct and honest practices on the part of those who are privileged to represent them before the patent office.

The patent system, so beneficial to the industrial development of the universe and the advancement of mankind, should not be brought into disrepute by the greed of conscientiousless patent attorneys. The granting of letters patent on an invention ought to mean something more than a benefit to the extent of a \$25 or \$30 fee to some patent agent, yet that is all it has meant or does mean in hundreds and thousands of cases filed in the patent office.

It may never be possible to prescribe a perfect code of ethics, but that there is room for improvement in the present system has been strikingly demonstrated in the investigations now in progress in the patent office.

The judgment of mankind is not infallible, but it can at least be human and to urge an inventor to forward fees for taking out foreign patents after rejection in this country, or to write a client that his invention is worth thousands of dollars and to send on money to advertise its sale, after a patent has been refused—even on appeal—is a system bordering dangerously close on the "green goods" order, and something that organized society, through its governmental institutions may be expected to surely if not speedily eradicate.

It was rumored a short time ago that the patent firm of Edgar Tate & Co., had been indicted by a New York grand jury, but no such indictment is now on file. It is said a judgment was gotten against this firm but subsequently vacated. Undoubtedly the patent office people will look into this matter and determine whether the confidence of inventors in the integrity of this firm is misplaced. Mr. Griffith, who is said to be the leading member of the firm, held a consultation with the patent office officials recently regarding proper ethics in patent practice. This firm seems to have been the originators of the scheme of sending out a "list of patents wanted," which has been so much abused by other firms—notably Wedderburn & Co., which firm has been in the habit of sending out a "list of 1,000 inventions wanted"—when as a matter of fact nine-tenths of those mentioned have either been anticipated or not wanted—except for the purpose of swelling the income of Wedderburn & Co. Tate & Co.'s list was a much smaller one, however. O'Mera & Co., of this city, have been in the habit of sending out such a list but have now discontinued the practice. It is not considered professional.

THE membership of "The Patent Law Association of Washington," composed of the most reputable solicitors and practitioners before the patent office, is constantly on the increase. The association is now considering the advisability of making

it a national order. They are doing much to assist Commissioner Butterworth in improving the standard of practice before his department.

Our Consular Service.

A resolution recently passed by the Board of Trade of Johnstown, Pa., favors a union of the Philadelphia Commercial Museum with the United States consular bureau with a view to making the former a training school for the consular service. It is becoming more and more a lamentable fact that consular positions are being filled by individuals not at all qualified for the duties—men who may be eminently respectable and influential but so deficient in experience and business training as to fail to comprehend the requirements of consular agents to the highest degree of efficiency. Consuls are simply the business agents of the government, not the diplomatic and dress parade representatives. Like traveling men for a great merchantile house, these agents should possess a keen appreciation of the opportunities for an extension of the trade of this country.

If the United States is not getting her share of foreign business, if our goods have not been introduced or popularized, or if we are being discriminated against in any way, are questions that the consular agent should examine with understanding and ability to report upon to the benefit of the people of the United States. To send mere place-seekers to these foreign consulates simply to decrease the political debt of an administration is to do so at the expense of the business interests and business welfare of the people of this nation.

Mr. N. F. Thompson, secretary of the board of trade of Johnstown, recently referred to this matter in a letter to the Manufacturers' Record, as follows: "I find that many who have given the matter very close study are of the opinion that it was our export trade that practically saved all our business interests from wreckage during the past year, and that it will enable our country to place its entire surplus, if the consular service was in the hands of those who were trained to our business wants and possibilities." This is calculated to lead the people to a serious consideration of this subject, and it is believed that President McKinley, in making his appointments is discriminating in this direction as far as it is possible to do so.

ATTENTION is again called to the fact that through no other medium can those who are interested in inventions and patent procedure procure so much information as may be had from an expenditure of one whole dollar for one whole year for the INVENTIVE AGE. Those desiring to obtain the full record of the investigation proceedings in progress before the patent office, will receive the back issues of the AGE extra.

THE firm of O'Farrell, Fowler & O'Farrell, formerly Patrick O'Farrell, the well known pension and patent attorney, has bought out the pension business of John Wedderburn & Co., which is a guaranty that regardless of the cloud just now hanging over the firm of Wedderburn & Co., their former pension clients will receive that prompt and persistent attention characteristic of Mr. O'Farrell's long experience in the prosecution of pension claims.

THE government has been advised that John A. Miller, of Denver, Col., has completed a model of an airship twenty-four inches long, which works to the entire satisfaction of the promoter and the inventor now wants to know if the government will take an interest in it. If Mr. Miller has a successful airship he will hardly be obliged to call on the government to take an interest. He need never pass the city at the foot of the lakes.

To prevent jar and concussion to a horse by his feet striking the hard pavements, a tapered pad of rubber projects through a hole in the shoe to deaden the force of the blow of the shoe as the horse sets his foot down.

During the past 25 years 711 patents have been granted to Thomas A. Edison.

New Consul-General to Melbourne.

One of the most important foreign missions was filled last month by the appointment of Hon. John P. Bray consul-general to Melbourne, Australia, to succeed Hon. D. W. Maratta whose term has expired. President McKinley selected Mr. Bray from a list of over fifty applicants, the place being considered one of the most desirable in the gift of the executive. Mr. Bray will bring to that position a ripe business as well as political experience. He is a young man, only 36 years of age, and one of the pioneers in the great new northwest of the American continent. He was born in Minnesota and migrated to the great wheat belt of Dakota Territory (now the states of North Dakota and South Dakota) in 1876, where he engaged in mercantile business. He held important county offices for six years and upon the admission of North Dakota into the union was elected its first state auditor, and re-elected a second term. President Harrison appointed him postmaster of the leading city of the state in 1891 but being an aggressive republican he was removed by President Cleveland for "offensive partisanship," a familiar charge under the Cleveland regime. Mr. Bray's standing in the party which honored William McKinley with the presidency, is established by the fact that in that campaign, and for six years previous, he was chairman of the executive committee in his state.

Mr. Bray is a widower, his wife having died about two years ago. He is not a public speaker, nor is he a society man in the general acceptance of the term, but he is affable and approachable, loyal to friends and popular in club circles. He is a graduate of a commercial college and at the time of his appointment was engaged in the business of investment brokerage and land sales.

Mr. Bray succeeds an excellent gentleman from the same state, Capt. D. W. Maratta, a democrat. A personal acquaintance, extending over a long period, prompts the editor of the INVENTIVE AGE to bespeak for Mr. Bray the confidence and respect of its Australian readers and all the people under the Melbourne mission.

Honest Patent Selling Agency.

The personal reliability and good standing of the two gentlemen composing the firm of Fletcher & Evans of this city, and their system of doing business, would seem to indicate that this city at least has a patent selling firm that can be recommended to inventors. Their business is conducted upon a purely commission basis, and the inventor consigning his patent to them for sale is under no expense until a sale has been perfected, other than that of supplying them with a model of his invention. And further this firm does not attempt to sell all patents that may be offered. They select from those offered such as their judgement leads them to believe can be profitably handled. They have business connections in all important cities in this country and European centers, and conduct their business on entirely different basis than the "advance fee" agencies so well and unfavorably known to inventors. This is the first patent selling firm the INVENTIVE AGE has felt justified in recommending in any way.

Expanding=Auger.

The invention of an expanding auger, by which a hole may be bored larger at the bottom than at the top, was for a long time thought impossible, but it has been successfully accomplished, and has simplified many of the operations of building and other systems of construction. As the auger enters the wood a movable side bit or cutter is forced outward from the bottom of the cut by turning a thumb-screw on the body or stem of the borer. Thus the hole may be made a third larger at the bottom than at the top, if wished. The advantages of this are apparent. In securely fastening the tenon or piece which enters the hole, all that is necessary is to simply "check" its end and insert or merely start a wedge. In driving the piece home the wedge

strikes the enlarged bottom of the mortise or bore and expands the entering piece to a complete and water-tight jointure. Patented by Andrew Lee, St. Paul, Minn.

How Inventions will Bless Cities.

The city of the future, and no very distant future, will have no trolley poles or wires and no horses. All movements will be on rail by silent air motors or by horseless carriages equally silent. All pavements will be asphalt. Unlimited light will be as cheap as unlimited water is today. No coal will be delivered at private houses and no ashes taken from them. With no horses, no coal no ashes, street dust and dirt will be reduced to a minimum. With no factory fires and no kitchen or furnace fires, the air will be as pure in the city as in the country. Trees will have a chance; houses be warmed and lighted as easily and cheaply as they are now supplied with water.—*Phil. Press.*

Ship Construction.

John Haug, of Norristown, Penn., has been granted a patent for an invention concerning ships. If Mr. Haug's idea is carried out in the construction of his ship, it is quite possible that the latter will be at least of great strength. This ship is designed to have deep girder-frames extending around its transverse section at suitable longitudinal



HON. JOHN P. BRAY, CONSUL-GENERAL TO MELBOURNE.

nal intervals. These frames are to be alternated with web-frames and others of the usual construction, spaced intermediately of the deep girder frames. The deck frames are arranged for horizontal, longitudinal shelf-plates secured to their under-side, and extending along each side and close to a row of hatches.

Up to the first of February, 1897, ladies were not allowed to ride a bicycle on the streets of the city of St. Petersburg; since that time, permission has been granted. There are four cycling clubs in that city and three in the suburbs. The number of registered wheels in St. Petersburg is a little over seven thousand.

An automatic pipe coupling recently patented is formed of a grooved section mounted on each end of the hose to slide over each other until the openings are opposite, when two spring clamps lock them in place.

Among the smaller inventions for sale by Fletcher & Evans, No. 509 14th street, Washington, D. C., is a handsome and practical "Cash Tray," for use in smaller stores; also a "Time Dose Indicator" for use by prescription druggists—a very useful device.

The Ridiculous Features of Prize Offering.

CINCINNATI, OHIO, July 29, 1897.

Editor Inventive Age:

GENTLEMEN: I thank you very much for the copy of your paper received recently. In regard to the medal and prize offering concern of Wedderburn, it has always puzzled me that inventors fail to see the ridiculous feature of the whole business, since such medals or prizes have no official significance at all and improve in no way the value of a patent.

They would realize this better perhaps if other professional men would advertise in a similar way, as for instance:

Drs. A. S. & Co., have inaugurated a new departure in their business. Hereafter all patients consulting them on any ailment or disease will, in addition to our opinion be benefited by receiving a silver medal. Monthly prizes will also be distributed to such patients who, after having been examined by the experts in our examining division, are found eligible by reason of being afflicted with the most interesting and distressing diseases.

Cases particularly wanted are:

Seven year itch.
Bald-heads.
Club-feet.
Hump-back.
Fits.
Kleptomaniacs.
Freaks of all kinds.
Drunkards.
Maniacs, etc.

Among those who after careful examination have been found worthy to be honored by receiving prizes lately were the following:

Mr. S. H. of Y. a strong case of excessive perspiration	\$150
Mr. Y. B. of G. ulcers, ugly and persistent	\$150
Mr. L. N. of F. a case of tremens of the most aggravated sort	\$150
Mrs. L. O. of C. fits, very lively	\$150
Mr. F. O. of Y. running sores, prolific case	\$150

Since it would require too much space to mention all the fortunate ones benefited under our system, we respectfully invite any prospective competitors for our medals or prizes to inspect list of references at our offices which includes prominent people of all classes, senators, etc.

The list of competitors closes on the 25th, therefore all the freaks, imbeciles, cripples and (suckers) who wish to enter should apply in time to be in line for examination by our eminent experts.

We are the recognized leaders in this new system; others follow. Beware of imitators.

DRS. A. S. & Co.

Or, if a lawyer would for instance advertise like this:

Hereafter all clients consulting us in regard to any law business will receive a silver medal, additional to our opinion. Monthly prizes will also be distributed to those having the most complicated cases and deepest involved.

Cases wanted are:

Burglaries.
Habitual criminals.
Crimes of all kinds.
Petit and grand larceny, etc.

Among the worthy persons defended by us who have been honored by prizes lately are the following:

Mr. H. O. of G. highway robbery	\$150
Mr. K. G. of C. green-goods dealer	\$150
Mr. V. H. of Y. bigamy, and bastardy case pending	\$150
Mr. L. O. of W. known thief	\$150

I believe that an ad. of this kind would be a kind of an eye-opener. It would show that a silver medal cannot benefit a sick man or a criminal any more than it would an inventor.

Mr. Lehman wrote me some time ago about any information aiding him in his intention to suppress this degrading practice. Beyond a badly delayed case and one man who said that he had sent \$10 to them without having (then for a month) received an acknowledgement, I have nothing to report.

Unfortunately the man who sent this fee called in my absence and did not leave his name, except that he was from Dayton, Ohio.

Very respectfully,

C. SPENGLER.

A reader of the INVENTIVE AGE, Chas. Everding of Bradford, Conn., writes that he is confident he can construct a vessel that can be driven by wind as fast as a vessel is now propelled by steam, and he wants some capitalist to investigate, furnish the funds to procure patents, construct a working model, promote the enterprise and divide a prospective fortune.

The King of Siam has just granted a franchise for an electric lighting plant in Bangkok to an American firm.

Niagara Falls Hydraulic Power & Mfg. Co.

In the great canon or gorge below the falls is situated the power house of the Niagara Falls Hydraulic Power & Manufacturing Company. This development of Niagara Falls power is the outgrowth of the earliest that was made. The so-called hydraulic canal was constructed over forty years ago, and for a long time furnished power to flouring mills located on the bank of the gorge. Taking its water about a mile above the American fall this canal, which is nearly 100 feet wide, runs to a point on the cliff about a quarter of a mile below the falls. Thence the water is led by a steel penstock of very solid construction to four Leffel turbines, operating under a head of 206 feet, situated at the base of the cliff on the bank of the river. At the bottom of the penstock is attached a vertical cylinder 42 inches in diameter and 20 feet long, which is filled with air and acts as a buffer to prevent the shock and strain on the penstock that would follow the sudden stoppage of the flow of water. The normal pressure at the bottom of the penstock is 85 pounds per square inch, and as additional precaution the base of it is supplied with

are located other than the grinding of flour, and the manufacture of paper by the Cliff Paper Company. Now that electrical transmission has added a new means to those at the disposal of engineers this plant has increased greatly in size and is already a formidable competitor to the Niagara Falls Power Company, which operates the hydraulic tunnel. For illustration and data, herewith we are indebted to the "Electrical World," of New York, which contains an excellent account of the recent meeting of the National Electric Light Association.

Advice to Inventors.

A well-known firm of mechanical engineers, engaged in making designs and models for inventors, in a long letter, offers some good advice to inventors. We quote a portion:

"We believe in giving facts in the case and to the ignorant inventor facts are very distasteful, especially if he has work to do and has nothing to pay for it with and is trying to get it done for nothing.

We think you are in a position to do the greatest good of any man in this U. S. for the inventors but we certainly have no desire to dictate any thing to you.

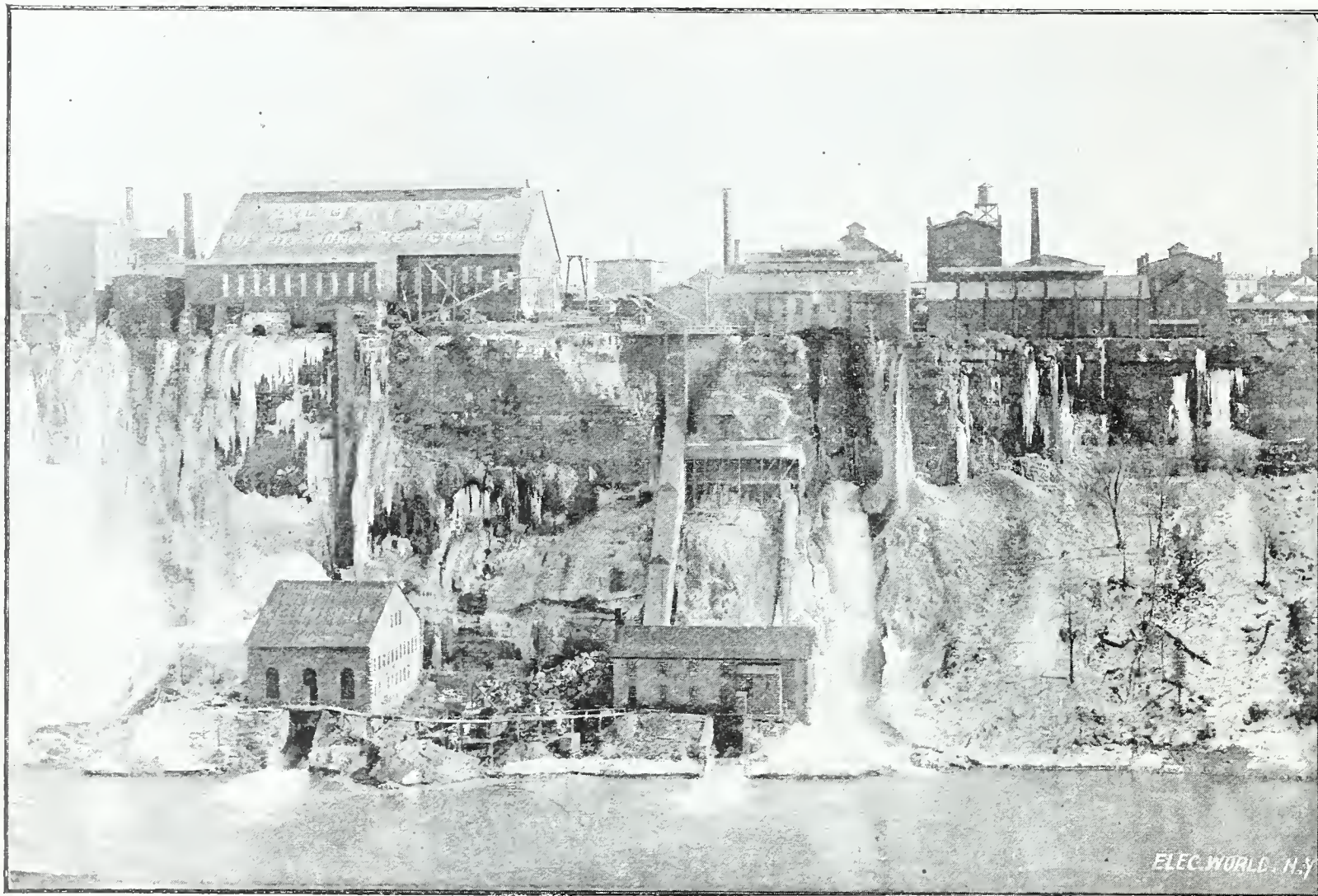
The reason that not one inventor in a thousand makes a success of his invention is because he is

not practical and we could not beat it into him with a steam-hammer that he was simply throwing his money away. If the attorney had said to that man, "go make one of these air-ships and try it and see that it works all right and after you have it working all right bring it to us and let us make a trip in it and see that it works all right and see how it works and then we will take out a patent for you." This would have cut the attorney out of this one case but it would have brought him others that would have made up for it.

We think you, the editor of the INVENTIVE AGE, are the man of all men to rise up and sweep this fake patent business into the lower regions where it belongs and give inventors to understand that before they take out a patent on any thing they should see what has been patented in that line and know that their machine will work and that they can make money out of it.

We beg your pardon for taking up so much of your time, but if we could lead you to the point where we see these things from, you would be even more enthusiastic than we are to have the facts known.

Contracts are to be let by John Bogart, the well-known engineer of New York, for what will be the greatest water power plant in the world. The con-



VIEW OF NIAGARA FALLS POWER & MANUFACTURING COMPANY'S PLANT FROM CANADIAN SIDE.

eighteen relief valves set at 120 pounds pressure. The tail race is quarried out of the limestone, and is 18 feet in width. The control of the turbines is very peculiar. Those which are used for generating the steady current for the Pittsburgh Reduction Company are not provided with governors, seeing that their load is perfectly constant. The wheel used for generating the railway current is provided with a Lombard governor, the first of its kind ever operated. These turbines are used in part for the generation of current for the use of the Pittsburgh Reduction Company in the manufacture of aluminum, and for the supply of current to the Gorge railroad, and to several mills and factories. An extension which consists of five turbines, each of 2000 horse-power, is well under way. The new flume which is now being constructed to supply these turbines will be of unprecedented size and will be constructed of steel $1\frac{1}{4}$ inch thick. It has not yet been divulged what use will be made of the 10,000 horse-power which is to be generated, except that it will be converted into electricity and utilized through that agency, but it is generally believed that it will be utilized in a new electro-chemical industry.

The tremendous impetus that has been given to the operations of this company by the installation of electrical apparatus is worthy of note. For nearly forty years, nothing was done with the gigantic power available at the point where their works

not properly instructed by men who are supposed to know and be able to give him the advice that he should have. The first thing an inventor should do after inventing any thing is to make one and find out if it will work and if it can be made and sold in competition with other similar articles for the same or similar purposes now on the market, and if he finds it can be sold at a good profit and that it will work satisfactorily, then he should take out a patent and not before. If this plan was followed one patent would be issued for every hundred that is issued today and this one patent would be a success.

The indiscriminate patent attorney is too anxious to get his fee for taking out a patent to give the inventor the advice that he should have. The result is that the ignorant inventor takes out a patent on something that has not been invented or made and it is worthless, and when he comes to make it he finds he is a fool and his patent is simply a divorce from his money.

If some good man like you with a good paper like you have would get up and give the facts in the case to these poor ignorant inventors, you would be entitled to a monument heaven high.

Take that Henry Hintz, air-ship that a patent attorney took out a patent on for example. That man came here on his way East and we sent him to the attorney after we had given him some very good advice. We would not do his work or have any thing to do with his inventions because they were

tracts will call for 15 turbines of 5000 horse-power each, or an aggregate of 75,000 horse-power. The proposal is to take power from the St. Lawrence River, near Massena, N. Y., an English company having underwritten \$3,000,000 in bonds to carry out the scheme.

Lighting Cars by Electricity.

A system for lighting railway cars by electricity has been given a practical test by the Pullman company. The mechanism of the apparatus is very simple. A plain gear wheel attached to the car axle drives a pinion on the shaft of a one-horse-power dynamo secured on the car truck. The current generated is passed through a small storage battery, whereby the light is rendered brilliant and uniform, both while the train is running and when it is standing still. Each car is thus independently provided with its generating and illuminating apparatus, so that cars may be detached from through trains, when desirable, and sent over connecting roads without limitation. The apparatus weighs less than 500 pounds, and is automatic in operation, thus requiring no personal attention, except at long intervals of time, when regularly inspected at terminal stations.

Official statistics show that the United States has more telephone stations than all the European countries combined.

THE CHARGES AGAINST WEDDERBURN.

(Continued from first page.)

Strabon and Bowan, breakable neck bottle; Graham and Taggart, stove pipe; Johnson and Fuller and Connell, device for preventing conflagration of a house. "You see," said Mr. Stauffer, "that in all these cases the contention is that having filed the first one, even if they failed to find the references when the first one was filed, they should have made use of the knowledge which they obtained from the rejection of the first one in making their preliminary searches in the other applications. I think I ought to call your honor's attention to the fact that these applications are particularly good examples of the laxness and remissness which this company has exhibited in the preliminary searches which they have made." Other duplicate cases were cited—Ballard and Palsley; Davison and Finney and Wilmer, wrench; Henley, Stout, Rowberger, Delanty and Wilson, kettle to be used inside of a boiler, etc.—all not patentable. Cases were then cited in a number of cases appealed by Wedderburn & Co., to the board of examiners-in-chief wherein the client had been advised to appeal, when in view of the references cited, they should not have been so advised. And it is also noticed that the grounds upon which they base the advice are not truthfully stated.

WORTHLESS APPEALS.

Reviewing the case of appeal in the case of Clowe Mr. Stauffer said there were a number of references clearly showing that the device was not patentable, yet an appeal was taken. It was the duty of the respondents not to have permitted an appeal; the same contention in relation to the case of Buchanan for a shackle for a buggy. Particular attention was called to an incomplete application of one Willoughby. This case shows the following state of facts: Wedderburn & Co. advised that the invention for picking fruit was patentable and that it was very valuable, whereupon the client forwarded them \$20 for the first fees—\$15 first government fee and \$5 the cost of one sheet of official drawings as set forth by Wedderburn's letter. The client also wrote to Geo. C. Lemon giving a description of the invention. Mr. Lemon made a search, finding a number of references, and one of them an exact picture almost. In view of this Mr. Willoughby declined to execute his application and wrote to Mr. Lemon to get from Wedderburn & Co. the \$15 government fee. Order was served upon Wedderburn & Co. and the money refused.

An objection to the introduction of this affidavit was made by respondent's attorneys. Letters to Willoughby from Wedderburn & Co., explaining how the money forwarded had been applied and protesting against the obtaining of another attorney and refusing to return the fees, were then read.

DOESN'T OPPOSE INVESTIGATION.

Attorney for respondents argued that "secrecy attaches to many claims that have been sent here by inventors and which are now being paraded before the public contrary to law, as I understand it, and to the inspection of persons that are not entitled to see them. I am not making his statement however, with a view of avoiding an investigation".

The counsel for the patent office said that he should confine himself as briefly as possible to a statement of what it was intended to prove and a reference to a particular case. In a large number of cases, respondents being furnished with a copy of the summary, it would be unnecessary for the official stenographers to take down the list of cases.

To show the nature of the preliminary examination made by Wedderburn & Co. reference was made to a list of some forty or fifty exhibits in which no anticipating references were cited by Wedderburn & Co. in their preliminary searches, and such anticipating references were subsequently cited by the patent office. In one case a single reference that completely anticipated the invention was sent by Wedderburn and in the letter accompanying the applicant was given no advice whatever as to the patentability of the device and the applicant was called upon in the same letter to remit \$20—\$15 for the first government fee and \$5 for the first sheet of official drawings. Ten cases bearing upon this point were spread upon the records. Instances were cited where, upon preliminary examinations, Wedderburn & Co. called attention to more than one reference, but in which the letter reporting on the references was of such a nature as to lead the client to believe that his invention was patentable notwithstanding the references.

Reference was made to over forty exhibits in which Wedderburn & Co. stated to their clients that the invention was very valuable and in all of those cases an examination by the patent office showed that they were completely anticipated by references cited. In fifteen of these cases Wedderburn & Co. sent to their clients an estimate of the value of the invention, stating that this estimate was based upon the opinion of the chief of their

sales department. The value placed upon each invention, attorney for the patent office said it was intended to prove, were excessive and made in the majority of cases to induce the applicant to advance the necessary fee for the prosecution of the case, or to take out foreign patents or to submit the case for advertising, in the National Recorder and other journals, for sale.

SILVER MEDALS.

References were made to over sixty cases in which Wedderburn & Co. sent the client a silver medal and stated that the invention had been selected by the board of awards for special merit and placed upon the roll of honor. "In none of these cases do the letters state what constituted the board of awards, and in some of the cases it would be shown that the inventor believed that this board of award was connected with the patent office. In numerous cases it will be shown that a silver medal was granted apparently as an inducement for the inventor to advance the fees for the filing of the application and for advertising for sale, and in some cases the medal was sent before any report on the question of patentability was made, and for inventions that were not patentable."

Counsel for the patent office stated "in general we expect to prove by these cases that the medal was granted for the purpose of inducing inventors to advance the fees and that in none of these cases was there any merit in the case for which a medal, or an award of genius could be or would be granted by any conscientious individual."

A long list of cases was cited in which the silver medal was accompanied or followed by a circular letter containing a proposition to write up the life of the inventor. It was also intended to prove that Wedderburn & Co. made statements in their circular

LETTERS MISLEADING TO THEIR CLIENTS.

as to the amount of the fee charged by Wedderburn & Co.

Attention was also called to twelve odd cases in which Wedderburn & Co., instead of calling for the "\$20 balance of fee" as stated in their circular letter, called for "25" and when their attention was directed to these statements by the client, Wedderburn & Co. stated that it was a mistake to call for the \$25 and that \$20 only was due. Reference was made to thirty or forty in which Wedderburn & Co. offered to sell the invention stating, that their fee was merely contingent, but calling upon them for the payment of \$20 for advertising purposes, this sum to be paid in advance. In some cases this fee was asked notwithstanding the invention was not patentable and Wedderburn & Co. should have known that it was useless to advertise the invention for sale. Even if they had sold it, a sale under those circumstances, without anything patentable in the case would have been collusive fraud. In two of these cases in which a fee of \$20 was called for in advertising the invention for sale, anticipating references had been cited in the letter that reported the result of the search. Incomplete and misleading information in relation to foreign patents and cost of same would be shown by several cases.

In ten cases applicants had been urged to take out foreign patents after their applications had been neglected by the patent office and in three cases the application had received two rejections.

MISREPRESENTATIONS REGARDING FOREIGN PATENTS.

In the case of English (exhibit 93) Wedderburn & Co., sent to applicant for his signature to an application for a British patent after his application had been rejected by the patent office. Subsequently Wedderburn & Co., wrote to English that certain anticipating reference should have been found by their searches prior to advising him to proceed with a patent, and that under the circumstances of the case they did not deem it any more than just to return the fees that had been advanced by him for the two application (in the United States and Canada) that had been filed, but they went on to state in that same letter that they had no doubt whatever that they could obtain a patent in Great Britain and advised him to apply the fees in their hands to the filing of an application for a British patent.

Attorney for the patent office remarked that "to any one familiar with patent law, comment upon that letter is unnecessary." "We will show continued the attorney "by a list of thirty odd cases, it was the custom of Wedderburn & Co., to advise, or at least suggest an appeal to the examiners in chief at a cost of \$25 and in cases in which no hope of success could have been entertained by any one familiar with the case. References upon which these cases were rejected were never sent to the applicant nor commented upon by Wedderburn & Co., unless specifically called for by the applicant. It will also appear by those letters that Wedderburn & Co., "very seldom say, we advise you to take an appeal." Their statement invariably is that the examiner has rejected the case upon numerous references, no one of which showed applicant's precise construction, that the only course open to the appli-

cant was an appeal to the examiner in chief at a cost of \$25. The inventors being unfamiliar with patent practice were entirely dependent upon their attorneys for advice in the case and the letters framed and worded as these cases would invariably leave the impression upon their minds that the device was patentable and that an appeal was the proper course. "Mr. Wilson counsel for respondent expressed a desire to see some of these letters, and in response Mr. Winter for the patent office said he thought that in almost every one of these cases is a letter from the client to the commissioner of patents in response to a circular letter sent out by him."

Counsel for the patent office said that it was expected to show by the record and exhibits in this case that wherever Wedderburn & Co., reported to their clients that an invention was patentable it was their invariable custom after receiving a final rejection of the same to throw the blame of it upon the office. "We will show that in some of these cases no two men could differ as to the patentability of the device and yet Wedderburn & Co., would not acknowledge that they were in the wrong, putting the blame upon the office to the

SCANDAL OF THE OFFICE.

with the object of putting it in bad repute. We will show that Wedderburn & Co., excused their failure to obtain patents by reflection upon the then administration of the patent office. We will also show by personal letters of the applicants in some cases that they would not have proceeded if it had not been for the prizes and other strong inducements offered by Wedderburn & Co., to proceed."

CASE CLOSED FOR THE PATENT OFFICE.

This closed the case for the patent office for the present. Counsel stating: "We reserve the right, however, if pertinent cases develop, from day to day to introduce them. We also wish to enter upon the record a statement that it is our purpose to introduce any paper that is in the patent office relating to Wedderburn & Co.'s cases; if there is any official paper or any writing of Wedderburn & Co., or any evidence within the office, it must be taken notice of by the commissioner in contesting this case." Adjournment was then taken until Monday, July 26, when the hearing was resumed and Mr. Winter for the patent office introduced a little more documentary evidence, type written copies being handed to attorneys for respondents. List of exhibits was presented in which the letters show that Wedderburn & Co., believed the applicants had other inventions which they contemplated patenting and the letters in these cases make the misleading and even false representations of the conditions of the applications, concealing the fact of the rejection, and failing to notify the applicant of the condition of the case, until absolutely compelled to do so.

The attention of the company was also called to exhibits in which Wedderburn & Company sent to the applicant letters upon which is stamped in large type, red ink, a statement of the number of patents procured the previous week and the number that were sold. Attorney for the office stated that it was proposed to rely upon these exhibits to show that the numbers given by Wedderburn & Company in this stamped endorsement upon their letters indicates the number of patents granted by the patent office for the week and the number of assignments recorded for the corresponding week, and does not indicate the number of patents procured by Wedderburn & Company or the number sold by them. The stamped endorsement upon those letters is calculated to induce the applicants to believe the number of patents there mentioned as procured and the number there mentioned as sold were procured and sold, respectively, by Wedderburn & Company. In certain of these exhibits where applicants failed to respond to the first letter, Wedderburn & Company sent out a second letter, generally undated and of circular form in which they called attention again to the patentability and the salability of the invention submitted by the applicant.

CERTAIN AFFIDAVITS OBJECTED TO.

Affidavits of Frederick Benjamin, George H. Snyder, Lial M. Gillis and Frank X. Gowans, were offered and objected to by counsel for respondents. Hon. S. T. Fisher, ex-assistant commissioner of patents, one of the counsel for the patent law association of Washington, suggested that this is an investigation by an administrative officer and that it is not practicable to observe the rules of courts strictly. The introduction of the affidavits would shorten the time of the investigation and there would be no objection to the other side filing affidavits and cross examining the people who make these affidavits. The attorney for respondents objected to it on the ground of ex parte testimony which can not be received in this case. "We propose to prove that these charges are false by the usual rule adopted in ascertaining the truth. This is the kind of a cause where a man is assailed in his professional capacity."

Assistant Commissioner Greeley thought it better

to have the witnesses appear.

MR. BENJAMIN TESTIFIES.

Mr. Benjamin called, he testified in substance that he had had frequent conversations with Mr. Wedderburn about his business. That he (Wedderburn,) had expressed himself frankly that his methods were not professional in the usual acceptance of the term, that his object was to make money; that many of his clients approved of his methods; that he had talked with Mr. Wedderburn within the past five or six weeks. In conversation Mr. Wedderburn had stated in substance "I know that other members of the profession—most of the members of the profession—would steal too if they could by doing so be as successful as I have been in my methods." Asked if Mr. Wedderburn had endeavored to secure his services Mr. Benjamin said propositions had been made on several occasions by Mr. Wedderburn to work for him. Mr. Wedderburn had stated to him on one occasion that the most of those people for whom he did business wanted to get a favorable report so that they could use it with people that had money to get a patent, in making application for a patent, and that it did not make any difference to them what kind of a patent they got. He had observed some of Wedderburn & Co.'s searchers.

In one case he was sitting next to one and in conversation remembered very distinctly that he had no idea of the business, referring to Wedderburn methods. Mr. Benjamin recounted incidents attending the transfer of the business of the Press Claims company; witness had called upon him (Wedderburn) for first Government fee from various applicants in cases turned over to him (Benjamin) for prosecution and only after threatening to call the attention of the commissioner of patents to the matter were the fees turned over.

In cross examination attorney for respondents sought to show that the witness was largely engaged in other business; witness admitted that he was now connected with the Press Claims company and that the company solicited business, the power of attorney going to him as counsel. Questions considered irrelevant and not pertinent to this case witness refused to answer. Asked if he (Benjamin) was not one of the active promoters of this investigation of Wedderburn, witness said "it is a matter of opinion." Questioned regarding the business of the Press Claims company and the condition of the transfer from Wedderburn's former management witness declined to answer on the ground that the Press Claims company was not on trial. Mr. Benjamin was asked if his company gave prizes to which answer was made that none had been advertised since his connection with it; he thought that it did offer prizes under Mr. Wedderburn's management. Asked regarding conversations had with Mr. Wedderburn witness said he could not remember anything more than he had given in his direct examination. In one conversation he remembered Mr. Wedderburn saying that, "it was better for his clients to do a contingent fee business," and in same conversation in his (Wedderburn's) office Mr. Wedderburn used the expression, "That a sucker was born every minute and that he expected to get his share of them; that it did not make any difference what kind of a patent these people got just so that it was a patent."

Asked if he knew if he was going to be examined witness declared he did not until this morning. In his conversation Mr. Wedderburn had used words that conveyed the impression that he (Wedderburn) did not care about the profession or the patent office. Asked if he had worked for Mr. Wedderburn or offered to work for him for \$50 a week witness admitted that he had talked with Mr. Wedderburn along that line some time ago and Mr. Wedderburn wanted him to go to Chicago and take charge of an office there but witness was not willing to go. Witness could not give names but was certain that searchers for Wedderburn observed by him in the line of their duty were incompetent.

AN EX-EMPLOYEE'S TESTIMONY.

Frank K. Gowan an ex-employee of Wedderburn & Co., was next called as witness by attorney for the patent office and stated that he was nineteen years of age and entered the search department of the company with no previous experience. He was in the employ of Wedderburn & Co., for nearly four months and during that time he kept a record of the cases in which he made searches. He found that the other clerks were making from nine to twelve searches a day and was given to understand that he was expected to accomplish as much as soon as he had learned the ropes. He cited a number of cases in which he had made a favorable report as to the patentability of invention without making a search and stated that he did this under the instructions of Mr. Snyder, then in charge of the searchers for Wedderburn & Co. No reason was assigned for his discharge but he was told by Mr. Randolph and other employees that he made too many unfavorable searches—meaning that the invention was not patentable in view of the references found. After some experience, he

stated he made on an average of eight searches a day. Witness presented a list of about 250 cases in which he had made searches in 30 days, the average being about 60 favorable, or patentable, to about 180 unfavorable.

By a series of questions by attorneys Winter and Stauffer the fact was developed that Wedderburn & Co., were in the habit of employing young men, or rather boys, to make searches who had no previous experience. Witness was not in a position to state whether or not Wedderburn & Co., made the same kind of a report to their clients as he did to Wedderburn & Co., regarding the cases he handled.

On cross examination, in reply to questions by Mr. Bond, of Wedderburn & Co., witness admitted that he came to the firm for the express purpose of learning the business of a searcher and further admitted that he was to take his instructions from Mr. Snyder, and stated that he did so. Mr. Gowan admitted upon one occasion that Mr. Bond had urged the searchers to be more diligent in their work. Mr. Bond endeavored to show by the figures given by witness that there was a discrepancy and this was explained by Mr. Gowan saying that there were some days in which he did not keep a record but from the days he kept track of the average was made up. Witness stated that he made one favorable report which he thought to be unfavorable, but in which he could find no reference. He did not report the fact to Mr. Bond because he understood he was to report to Mr. Snyder. All cases were to be submitted to Mr. Snyder and the searcher gave his decision as his (the searcher's) opinion whether favorable or not, then the cases went over to the office for revision. Questioned as to who suggested that the witness should make the affidavit made by him, Mr. Stauffer for the patent office admitted that the same was prepared by him and amended by Mr. Gowan. The suggestion as to making the affidavit was made by Mr. Benjamin of the Patent Law Association.

It was further developed that exhaustive searches were not made in many cases, and that such cases were reported favorable because of lack of time to make the average number of searches required by Wedderburn & Co. Mr. Gowan remembered that Mr. Bond about a month after the witness entered the employ of Wedderburn & Co., had stated that a number of searches had been made where another search was necessary but would not swear that it was prior to May, and that in the future the one making the original search would be docked for the time consumed in making a second search.

Mr. G. Sargent Elliot was called to the stand to substantiate the charge that Wedderburn & Co., had refused to turn over the fees where the power of attorney had been revoked and the case placed in the hands of another attorney—Lehman & Co.

Mr. Benjamin was recalled by Mr. Wilson for Wedderburn & Co., and questioned as to his connection with the "Press Claims Company," and the "Inventors Institute," and his knowledge of certain prize offering advertisement. Mr. Benjamin stated that whatever advertisements were out of that nature had been made while Mr. Wedderburn was general manager of the Press Claims Company and that since his connection with these companies no prizes had been given.

MR. SNYDER TESTIFIES.

Geo. Henry Snyder, employed by Wedderburn & Co., from the first of February until June 12 was next called and stated that he was 22 years of age and went to work with the impression that he was to make searches but after working four days was placed in charge of the Wedderburn & Co.'s force of searchers in the patent office. His duties in this last capacity were supposed to be to examine the references and decide whether or not the case was fully met and whether the references should be cited. Asked regarding instructions from any officer of Wedderburn & Co., higher than himself as to the nature of the work that he was to perform, witness said, that he received no specific instructions only that he was to make an average of nine searches a day and make them as thoroughly as he possibly could. He received these instructions from Miss Katie Shea, assistant book keeper, who distributed the cases of respondents to the searchers. When asked regarding the character of the searches made by the men in his charge he replied that in his opinion in a majority of cases the searches were carelessly and incompletely made. His opinion was based upon the fact that in examining the references he would often ask the searchers if they had carefully gone through the bundles and a search on his part would develop the fact that they not. Witness had had previous experience of three years with C. A. Snow & Co., and two years with F. A. Lehman. With the exception of one all searchers under him were inexperienced young men. When asked if he had ever given any instructions as to the nature of the report searchers were to make in individual cases he replied that they never made anything but a favorable report. If the case was unfavorable it was checked on the letter, the references were cited and the case was then decided at the office of Wedderburn & Co., whether or not it was patentable, but if I examined the references and found it to be patentable over the references, I instructed them to report

favorably upon it as I was instructed to do. I was told to report favorably on cases that were patentable, but unfavorable cases were sent to the office; he was not instructed to report on cases with out a search, remember the cases regarding which Mr. Gowan had testified and being unable to suggest any class in which reference in relation to this invention could be found, instructed Mr. Gowan to report favorably upon it. Witness testified that experienced searchers were discharged and inexperienced men were put in their places.

FIXING VALUES OF INVENTIONS.

Mr. Snyder was then asked if he had any knowledge of the manner in which estimate upon the value of an invention was placed in the office of Wedderburn & Co. "A. L. Hughes, I was often told, was chief of the sales department and he would place values upon inventions. The first day I went into the employ of Wedderburn & Co., I was given a search to make on a can-opener. When I looked at it, it was decidedly old. I went into the file and found a letter had been written the inventor upon which a commercial value had been placed of from \$3,000 to \$10,000. I looked at the date of the letter and the date the model was received and the model had been received after the letter was written. I made a search of the invention and found it to be old."

On cross examination witness testified that in his opinion Mr. Bond, Mr. Stockbridge and Mr. Julian, employed by Wedderburn & Co., were capable men. Witness stated that his searches had been conscientiously made; had nothing to do with the cases that were sent over to the office, except that after 4 o'clock he would work on the revision of cases. It was endeavored to show by this witness, by respondent's attorneys, that the patentability of an invention was largely a matter of opinion by both the patent office and the attorney and that Wedderburn & Co., were in this respect no different than other attorneys. Witness testified that in making searches he had heard Mr. Bond say, that where a man had made an imperfect search he would be docked the amount of time taken to make a research, but did not know that it was a standing rule. Mr. Winter at this point took the witness, and in answer to questions, Mr. Snyder stated that he had no knowledge of any case in which the inventor was told by respondents that the invention was of little or no value.

OTHER ATTORNEYS INTRODUCED.

At the conclusion of the testimony of Mr. Snyder an adjournment was taken until July 28 at which time a statement was made by Mr. Stauffer, and made of record, that E. M. Marble, S. T. Fisher and W. H. Doolittle would appear on behalf of the Patent Bar Association of Washington and that Wm. Small appears on behalf of Laura A. Peck and others. Lyle Nugent Gillis of the patent law firm of Bevins & Gillis, who was in the employ of Wedderburn & Co., from January 1 to June 1, as draughtsman, specification writer, searcher and mechanical expert. Asked what instructions were given in relation to searchers, witness said "My instructions on entering the search department were that I was to get the searches out as rapidly as possible, in fact the searches must be out within 24 hours after they were brought to me. I was also instructed to inform the searchers that any man making less than 12 searches a day would be discharged."

Asked if any particular instructions were given as to favorable and unfavorable reports, witness testified "I was told I must review all unfavorable reports and all those that I could possibly make a favorable report on to do so; that the favorable reports I must not review. There were later instructions, however, to review the favorable reports, which were again revoked. The favorable reports were immediately turned over to the typewriter who sent such reports to the clients. In the unfavorable, reference copies were ordered from the patent office and they were kept on my desk until such copies came. Sometimes these came over within 24 hours and at other times requiring several days. In one instance Mr. Wedderburn came over to the office, saw the cases that were on my desk and asked what they were, and I informed him unfavorable reports waiting copies; he asked how old they were and told me to send out as favorable all those that were over three days old."

Mr. Gillis stated that Mr. Wedderburn personally had given him the instructions with reference to favorable and unfavorable reports and was told by Mr. Wedderburn that after being in charge of the department for two months he would have all the searches he made, or that were made under his charge, reviewed, and that if he found any report he had made, sent out as unfavorable that was favorable, witness would be discharged; Mr. Wedderburn did not reverse the statement and say he would be discharged for making favorable reports when they should have been unfavorable.

AN ARGUMENT BY THE ATTORNEYS.

At this stage of the proceedings there was quite an extended argument by the attorneys for the Patent Law Association, patent office attorneys and respondent's attorneys as to the form of questions put to wit-

ness as to his knowledge as to the work of Mr. Wedderburn himself in the actual prosecution of cases or particular instructions given to witness and others tending to bring out the business methods of the firm.

In one individual case, that of L. E. Holsapple witness was given the case to read up while in the specification department. He showed young Mr. Stockbridge, who was considered the head of that department, an illustration in "Goodeve's Elements" clearly anticipating this invention and was informed that notwithstanding that it was Mr. Wedderburn's orders that all cases sent to the specification department as favorable should be written up and prepared. This line of prosecution was objected to by respondent's attorneys on the ground that it was mere hearsay evidence.

ANOTHER POWER OF ATTORNEY REVOKED.

Jesse H. Whitaker, of Whitaker & Prevost, patent attorneys, stated that he received from Mrs. E. P. Talley of Columbia, S. C., an order on Wedderburn & Co., to turn over to them all letters, etc., in respondent's hands, together with all money paid them by her.

This was a case in which Wedderburn & Co., had made a favorable report on an invention of a fire escape which, when a personal search was made in the patent office by Mr. Whitaker, revealed the fact that the device was old.

At this juncture Mr. Stauffer, counsel for the patent office, introduced the cases of William T. Witte and Geo. W. Emerson—appeals to the examiners-in-chief. After which adjournment was taken until the next day.

HOW VALUES WERE PLACED ON INVENTIONS.

On the reassembling of the parties in the hearing on July 29, Mr. Small for the Patent Law Association renewed his motion of the day previous that respondents, Wedderburn & Co., be requested to furnish a copy of their by-laws, which was objected to by Mr. Ford, counsel for respondents, on the ground that the commissioner of patents had no authority to issue such a rule.

Mr. Gillis was recalled by the prosecution to answer some questions in regard to the correspondence of the respondents, Wedderburn & Co., witness having testified that certain "set paragraphs" were usually used in the correspondence of the respondents.

Attorney for Wedderburn & Co., objected to this line of questioning, arguing that if any such letters were out the letters should be produced, whereupon a letter was produced. This line of questioning was pursued to show that the clients were misled by letters sent out by Wedderburn & Co., and that where inventions were unpatentable, by adroit wording of the letters, they were deceived as to the true facts in their cases.

Mr. Gillis was asked again in regard to the manner in which valuations were placed upon inventions. Witness replied "we would state to Mr. Hughes, who was considered the expert head of the sales department, the invention, and he would say from so much to so much and that would be the valuation that was sent to the client. We seldom if ever showed the invention to Mr. Hughes. He generally allowed a large margin; for instance he would say from \$1,000 to \$15,000. He did not to my knowledge turn down any invention as having no value. On cross examination the witness recited how he came in charge of the search department of Wedderburn & Co. Mr. Wedderburn came to him in person one day and said the search department was very much behind and he desired him to go over and straighten it out. He soon thereafter took permanent charge of that department. Asked if he considered himself a competent man for the place, witness declared he did. When asked if he conducted the business to the best of his ability, Mr. Gillis said he did not, "because Mr. Wedderburn restricted me; I informed him several times that favorable reports should be reviewed; that the searchers were not competent and that they made favorable reports when they should make unfavorable; that the searchers were compelled to make too many searches a day. One time he acted on my suggestion and gave me eight more men, but not the men I wanted." Asked what he meant by instructions, alleged instructions from Wedderburn, "to hustle out the searches," witness said "he told me they must be sent out within twenty-four hours after they were received and if I could not do it he would find somebody that could." Mr. Gillis having testified that as many as

EIGHTEEN OR TWENTY SEARCHES A DAY

had been made by one person; was asked, by counsel for respondents, who the persons were said: "Alex. Wedderburn, on one occasion; on several occasions Geo. Brown made fifteen. This was not an uncommon occurrence and it was my duty to revise only the unfavorable reports."

Witness admitted that on one occasion Wedderburn told him to post a notice that if any man made a search and failed to find a patent reference, that is to say a single reference that knocked the invention out, when one was found on a second search he would discharge that man. Wedderburn had not instructed witness to instruct searchers to make care-

ful and complete searches, but had instructed him that they must each make at least twelve searches a day. Questioned in regard to a certain letter Mr. Gillis said "he had been asked by Mr. Wedderburn to write a letter stating that I had performed my duties in a conscientious way. I said I could not. He said why not. I said, Mr. Wedderburn you know as well as I do that favorable reports have been sent out when they should not have been sent out. He said to me you will write such a letter or I will discharge you at once; I want none of this foolishness. I afterwards wrote such a letter under threats with the understanding of Mr. Wedderburn that what was referred to in that letter was stated because he considered it to be to the best interests of his clients."

The attorneys for the respondents attempted to prove by the witness that the service was improved after Mr. Julian was placed in charge of the search department. Out of considerations for his own feelings, witness modestly declined to enlighten Wedderburn's attorneys on this subject. Witness did admit that additional searchers were put on and to that extent the service might have been improved.

PRIZES FOR GOOD SUGGESTIONS.

It was endeavored to prove by the witness by respondent's attorneys that Mr. Wedderburn had always tried to improve his business in all respects and witness admitted that Mr. Wedderburn, following out his method of prize giving, had offered prizes for suggestions tending to improve the business; but witness thought this was only to refer really to the operative part of the business; that he had made some suggestions but with no view of receiving any prize—simply for the general good of the business.

On cross examination witness gave as his opinion that 60 per cent of the searches were reported favorable but the record to which he referred was not begun until after Mr. Julian was placed in charge of the search department.

At this point there was quite a discussion as to the amount of time that should be allowed the respondents to put in evidence. Mr. Greeley urged that they put in their evidence by affidavit. Counsel for respondent stated that they probably had 250 cases to go into that had been cited by the prosecution and that they desired to interrogate the witnesses regarding those cases rather than to prepare affidavits.

OBJECT TO EXTENDED ORAL TESTIMONY.

Mr. Winter, for the patent office: "I would suggest that counsel for respondents make some statement as to what they expect to prove by oral testimony in these cases that we have introduced as evidence. We have introduced the records of this office in these cases and also Mr. Wedderburn's letters, so far as we could get hold of them. I do not understand how oral testimony can alter that record. Wedderburn & Co., are at liberty to introduce the records of their office in these cases. Then it seems to me after that it is merely a question of judgment on the record whether or not those cases have been fairly and honestly prosecuted. Counsel for respondents said he wanted experts on the stand to give their opinion as to the patentability of inventions in view of references, and Mr. Winter suggested that both the commissioner and assistant commissioner were skilled in such matters and were perfectly competent to judge of those matters themselves.

Assistant Commissioner Greeley said the cases that were put in as exhibits in this case are cases that can be judged of without expert evidence.

Counsel for respondents asked, "do I understand that the commissioner will take up every case that has been introduced in evidence and look into it to find out whether a proper search was made?"

Mr. Greeley: "Every case will be looked into carefully." It was agreed finally that adjournment should be taken until August 4, and respondents were to submit as much of their evidence as possible by affidavits.

Up to the time of closing the forms of the INVENTIVE AGE for this month the case was still on trial with a fair prospect of continuing for at least three weeks, as something like 300 cases and the correspondence in relation thereto was to be examined.

The next issue of the INVENTIVE AGE will contain the continuation of the evidence which will show in detail the manner of conducting the business of this firm.

It is understood that at the conclusion of this trial the practices of other patent attorneys, to which the attention of the commissioner has been called, will be taken up for investigation.

Advertising in the Inventive Age Pays.

The following letter under date of July 17th is self-explanatory:

CLEVELAND, O., July, 17, 1897.

Pub. Inventive Age,
Washington, D. C.

SIR: Replying to your favor of 12th, advising us of expiration of our advertisement, will say that you may continue our advertisement till forbid. The returns from our advertising in the "INVENTIVE AGE" are highly satisfactory.

Yours Truly

OHIO ELECTRIC WORKS.

Patents and Railway Disasters.

If all records of railroad accidents could be blot-
ted out there would still be a way in which to tell at what time the great disasters on these highways of commerce take place. Every great railroad accident starts the inventive genius of hundreds of men and floods the patent office with applications for patents on devices supposed to prevent disasters of a similar kind in the future. Up to the present time 9,378 patents relating to railways have been issued. Whenever there is an accident heralded throughout the country inventors seek to discover the cause for the disaster. If it is learned that the switch did not work the patent office is soon flooded with applications for improved switches that are guaranteed never to fail at a critical moment. Whatever the cause of the accident is shown to be numberless devices to meet the necessity of the case are forwarded to Washington.—*Washington Star*.

Iron Felt.

The department has received the following from Consul Monaghan, dated Chemnitz:

Berlin and Leipsic are boasting about a new invention, to be known as iron felt. It is made of the very best woolen materials, impregnated with the inventor's patented preparation, which gives it 2,220 pounds' power of resistance to every square centimeter (0.3937 inch). The article is most useful for railroads of all kinds. Placed between rails and sleepers, it deadens sound and prevents shocks. The first experiments with the new material were made by the Berlin city street railway, over which three hundred and sixty trains pass daily. The results surpassed the company's most sanguine expectation. Not only was the noise brought down to a minimum, but the wear and tear was materially diminished. It is to be tried on the new roads in Leipsic. Old buildings, and particularly buildings of stone and iron, suffer most from the shocks and noise of passing trains. Such an insulating material seems to be specially adapted for elevated roads.

The Great Russian Canal.

A deep and long canal is to be built by Russia to connect the Baltic with the Black Sea. This stupendous project indicates the giant aims of the great Empire. The canal, as projected, is to connect Riga, on the Baltic, with Cherson, on the Dnieper near the Black Sea, is to be 1,000 miles long, 213.23 feet wide at surface, and 115 at the base, with a depth of 27.9 feet. It is to carry easily the biggest battle ships of the world. From Riga, the canal is to run into the river Dvina, thence by canals from Dvina to Lepel, through the Beresina and Dnieper to Cherson. Traffic is to be carried on day and night at a possible or permitted speed of about 7 miles an hour. The cost of the canal is put down at \$95,200,000.

Parlor Billiard and Pool Table.

Messrs. Fletcher & Evans, at No. 509 14th street, have on exhibition and sale a novel billiard and pool table combined. It is a combination affair that can be taken down, folded up and put away in an ordinary closet when not in use. The size is 4x6 feet and the regulation balls and cues are used. For parlor use and for young folks especially it is designed to fill a pressing want. Its cushions are lively and grown people will find it a pleasure producer and money saver. This patent is for sale and it would seem that for a small investment some one who has facilities for manufacturing the tables or can arrange to have them made and sold on royalty, could realize handsomely. Full size model is on exhibition at the company's building.

With a correct appreciation of the many and varied interests centered in the ship building industries of the United States and Great Britain, the publishers of Cassier's Magazine determined some time ago to bring out a special ship building and marine engineering number, in which the complete story was to be told of how a modern steamship is designed, built and launched, and how it is fitted up with engines and boilers and the mass of auxiliary machinery required by modern marine engineering practice, to be finally sent forth upon the highways of the sea to fulfill its mission of peace or war. The whole of this has been successfully accomplished, magazine number of exceptional size, wealth of information and artistic excellence. Each of the articles in the list was written by a master of his craft; every statement made bears the stamp of high authority. No half-way measures were taken to carry out the undertaking.

THE Indiana supreme court has upheld the 3-cent street railway fare bill passed by the state legislature and inaugurated by the city of Indianapolis.

NEW INVENTIONS.

Mowing Machine Sharpener.

To the users of mowing machines, who understand the slow and not always perfect work of the file as a sharpener of the cutting-teeth of the machine, the patented invention of Harding Allen, of Barre, Mass., will be a welcome addition to farm and field. This sharpener consists principally of a grindstone mounted upon a spindle, which is turned by a hand-wheel journaled to an upright and connected with the spindle mechanism. There is a frame or holder for the mowing-machine knife pivotally mounted in a bracket; and the grinder can be conveniently and easily manipulated so as to bring its revolving surface in contact with the teeth of the cutting-knife.

Stump Extractor.

In the pulling of tree stumps it is necessary to have a powerful lever, a solid fulcrum and altogether very strong gearing mechanism. In the invention recently patented by Charles G. Billings, of Downsville, Wis., all the above requirements and more are found. This stump extractor has a truck, an operating lever carrying a bridge over which extends an attachment for engaging the stump. The bridge forms a purchase for the attaching device, and the lever is connected by link with the truck axle. The whole arrangement forms a powerful apparatus, which should recommend itself to the progressive farmer.

Coffee-Pot.

Robert N. Harris, of Hickory, N. C., has been granted a patent for an improved coffee-pot, in which are some good features. This pot has on its front side an enlarged opening over which a strainer casing, comprising sides and front wall, is mounted. A strainer cloth stretched on a diaphragm is contained within the casing, to which the coffee-pot spout is attached. Almost everyone knows the satisfaction contained within a cup of good coffee—and to make this a good coffee-pot is necessary. The arrangement of the above described pot should produce an infusion of the berry perfectly clear and palatable.

Locomotive Bell Ringer.

When the patented invention of Samuel H. Heginbottom, of Saginaw, Mich., comes into use, the locomotive engineer's labors will be somewhat lightened; for instead of having to ring the warning bell by hand, as is now the custom, this work will be performed for him by mechanism. In this there is a cylinder, with inlet and outlet ports, having a piston to which is attached a supplemental rod connected to a rod engaging the bell-crank. So the engineer by simply letting on the power starts the piston, letting the bell ring the required period of time.

Foot-Pad for Horses.

For the prevention of the accumulation of gravel, snow or other matter in the hollow portion of the feet of horses, George H. Cram and Robert A. Wheeler, of Beloit, Wis., have invented and patented a device which seems to be a good thing for the purpose specified. The pad is made of leather or other flexible material, cut to fit within the horse-shoe and held there by metal attachments, which engage the shoe. Anything that will prevent "balling" in horses feet should be welcomed by the owner of horses, for the filling-up of the equine foot is not only a source of discomfort to the horse, but often a source of danger to both man and steed.

Miner's Lamp.

Charles H. Hobson, of Mount Carmel, Pa., has patented a lamp for the use of miners, in which lamp there are some very good features. It is made mainly of one piece of sheet metal, bent in various directions to form the body, spout and other portions. There is a wick tube, an oil chamber, and intermediate wall with its lower edge rolled to form a drum, around which the wick passes, and is kept from falling by the projection of the drum into the wick-tube. The person who invents something of benefit to the toiling miner, and of value to mine owners, should have his reward.

Pneumatic Tire.

Samuel F. Ettinger, of Little Rock, Ark., has received a patent for a pneumatic tire possessing

unique features. It is composed of inflated balls covered with sectional armor-shoes, which contact with the balls and separates them into compartments by inner-extending sections or walls that are engaged by transverse pins joined to the rim. The balls rest upon a solid annular cushion body surrounding the rim, and while yielding easily to outward pressure on the rim, are entirely free from possibility of puncture. But if by chance one should collapse, it is easily replaced, without disturbing the others.

Hair Curler.

When the recently patented invention of Camilla Julier, of Greenfield, Ind., gets upon the market, curl-paper and such, will take a "back seat." Mrs. Julier's invention is simple and will no doubt make a fine twister of locks and bangs. This curler consists of two separate wires, hinged together by eyes or rings and provided with loops at their free ends; a leather covering for the hinged connections, extending to the loops, and a fibrous packing between the wires and cover, one of the wires being thus made thicker than the other.

Therapeutic Current Generator.

As a man carries a time piece in his pocket for his business and other welfare, so he can carry with him a machine for regulating his health—if the apparatus for this latter purpose, invented and patented by Edward W. Chellis, of Erie, Pa., performs the work for which it is intended. And as electricity is playing an important part in bodily welfare, there is no reason why it should not be of value. This invention is for a therapeutic magneto-generator, which is in shape of a watch, with a removable cover, containing a winding post and stem, a spring-motor train—located in one side of the casing and wound by the stem—which gives action to an armature that rotates within a number of cylindrical field of force magnets. With these there are terminals for leading of the electric current generated, which current enters the human anatomy for the routing of bacteria and building up the man.

Bicycle Saddle.

A new invention in bicycle saddles is one by Orrin A. Tompkins, of Randolph, N. Y. This saddle for which a patent has been granted, consists principally of an upwardly curved spring extending transversely with the machine and supporting between its ends a seat composed of flexible webbing on each end of which is a removable cushion and springs for engaging the thighs of the rider. The width of the seat can be changed at will; and it allows the rider much of the comfort and freedom of an ordinary chair.

Crate for Live Game and Poultry.

A good thing in crates for shipping wild game and poultry, seems to be that in this line for which a patent has been issued to Charles Payne, of Wichita, Kans. This crate has corner parts extending above it; partitions running the full length of the crate, making several compartments; a feed and water trough across the front end, accessible from the compartments, and a top of textile material supplemented with a covering of board. This no doubt will make a safe and convenient receptacle for game birds and domestic fowls. The textile covering of the crate is alone an excellent idea, as it will keep the restless heads of the birds from being injured.

Metalic Fence Post.

A patent has been recently granted Jacob Y. Propst, of Staunton, Ala., whose invention—a metallic fence post—is one which combines cheapness and convenience. It comprises a post made of a single piece of wire bent and twisted upon itself to near the bottom where it forks and forms legs which engage a base for holding the post. Along the latter and arranged at certain distances apart, are notches for holding the fence wire.

Spring Brake and Bicycle Propeller.

An auxiliary force-maker and spring brake, is a newly patented invention by Peter Sellig, of Valley, Wash. In this there is a spring motor, spring box, relative rotative sleeve, a convolute spring connecting box and sleeve; means for retaining the spring box against rotation in one direction, and pawl for checking the backward rotation of the sleeve. With these is the usual pedal-driven shaft, to which is connected by clutching mechanism, the spring-box, the spring being wound when necessary upon the sleeve. When the spring-force is desired for hill-climbing releasing mechanism is brought into

play and the spring-acquired power is exerted upon the pedal-driven shaft. By this means the inventor of the spring-motor intends his machine, while going down hill to store up energy that can be used when there is a greater demand for energetic effort.

Dry Goods Rack.

There is such a wide field for the inventor, in the store fixture line, that it is a wonder that more has not been accomplished in this department. A good thing in this respect is the invention of James P. Caldwell, of Winnsborough, S. C. This device is a rack for dry goods, consisting mainly of two uprights with cross-section at top and bottom resting on two base-pieces, above which range a series of shelves. The latter are of sheet metal having in-turned tubular front and end edges, the end portions being adapted to slide upon short rods extending outwardly and upwardly from the uprights. This arrangement makes a movable goods-rack, the shelves of which can be taken off and put on at will. That it is convenient will be easily seen, and it possesses qualities for cleanliness not to be found in the ordinary dry goods shelf.

Fish Trap.

Christopher C. Thompson, of Grayson, Ky., has had issued him a patent for a fish trap, in which there is something that will at least engage the attention of the fish—the bait apparatus, ingeniously contrived, with a spring arranged within a box, by which hooks are made to close and engage the fish while its attention is engaged by the bait. The hooks (two in number) are on the outside of the box, being made to close horizontally; and an apron on the lower front edge of the trap prevents the fish from taking the bait without risk to its head.

Propelling Device.

Robert M. Fryer, of Washington, D. C., has had a patent issued him for a unique propelling device, whereby a vessel may, in a measure, become its own tugboat. This auxiliary propeller consists mainly of a cylinder pointed at both ends and carrying within a motor mechanism, which receives its power from the engine of the vessel to which it is to be attached. At one end of the propelling device there is a screw propeller; and to the middle of the auxiliary craft, there is a bar or tube connected with the ship and forming a conductor for electricity, compressed-air or other power-maker. On either side of the tube radial arms extend and also connect with the ship for more perfectly securing the auxiliary craft to its greater consort.

Spraying Device.

A device for spraying plants and other foliage is the new invention of Jacob Kagey, of Arcola, Ill. The sprayer is used in connection with a watering pot, and consists of a tube extending into the pot, a spout having a spraying nozzle, and a flexible bulb, joined by flexible tube to the tube. The watering pot can be used for pouring water; and by simply manipulating the bulb it can be converted into a sprayer, by which the quantity and force of the spray can be regulated at will. A particular feature of this device is an adjustable spout which can be turned to vary the direction of the water.

Scoop-Shovel.

It is strange that a good scoop-shovel has not long ere this been in use. This valuable earth-mover has for many years been employed exclusively with horse-power. But now Samuel C. Kenaga, of Kankakee, Ill., comes forward with a recently patented invention for a scoop-shovel for manual use. The scoop, which resembles somewhat the ordinary horse-power earth scoop, has a working floor, and is mounted upon two wheels on which it runs and upon which it fulcrums for lifting. At the rear end of the scoop is a handle used for pushing and lifting; and to this is attached a portion of an upright lifting-frame, one end of which is joined to the forward end of the scoop, so that when bearing down upon the handle, additional leverage is gotten. At the lower end of the frame is a gate connected by working-rod with the scoop handle and arranged to close the front of the scoop. This scoop-shovel is a useful invention, and should find a wide field of employment.

Book Support.

A patent for a book support has been issued to August Lundberg, of Worcester, Mass. The invention is simple and practicable, comprising a book shelf with longitudinal grooves and a sliding

curved wire upright secured to a flat metal plate resting transversely on the shelf, over the grooves. The arrangement allows the stacking of a number of books insufficient to fill the shelf and keeping them in upright and orderly position. When books are to be added to the shelf, the sliding support is moved back to give room, and then moved forward in contact with the outer and nearer book. To the owners of large or small libraries this book support should come as a welcome friend.

Street Sweeper.

John S. Morgan, of Empori, Kansas, has invented and patented a street sweeper, whereby a wagon or cart can be driven along the streets of a city, and without stopping sweep and take up the uncleanly matter that encumbers the street. To do this there is an angular chute with one end resting on and depending into a wagon, and the other end running upon wheels near the street surface. At the lower end is the sweeper—a rotary brush partly covered by an over-reaching hood, which by its revolutions throws the debris into the chute and upon an endless carrier, which gets its action from rotary drums, put in motion by the revolutions of the lower wheels. A vehicle thus equipped should do rapid work and at the same time be a labor-saver.

Car Window.

A car window-sash that can be put up and down without causing a man to say, or at least think, wicked words and wish for the strength of a Hercules, is something that has been looked for and desired for many years. In the invention lately patented by Jacob T. Grubb, of Reading, Penn., it seems that the traveling public may find a useful friend. The patent is for a window sash containing pockets, with a spring having forked rebent ends, mounted upon each of their sides and retained by axles carrying rollers. The idea of a widow sash which can be "rolled" up and down, suggests facility and ease. Now let someone come forward with a spring-summer car curtain that can be easily adjusted—one which will not rush up when least expected, as if it were afraid of the passengers.

Fastening for Shoes.

There have been made a number of inventions for fastening shoes, but most of them have been of the lace or button-fastening kind. A departure from this old method of securing shoe-tops, is one for which a patent has been recently issued to William H. Benford, of Lamar, Mo. This invention consists of an endless rubber band having hooks at each end adapted to pass through the ordinary eyelet holes of the shoe. The rubber band extends crosswise of the shoe; and the hook in one of its ends is arranged to detachably engage an eyelet-hole of the shoe. The employment of rubber in this manner for shoe fastening, while performing the work of the ordinary string, allows expansion over the instep, relieving undesired pressure and giving comfort to the wearer.

Brush-Holder.

Egra A. Losee, of Lake City, Iowa, has been granted a patent for a brush holder, combining lightness, simplicity and ease in manipulating, things which should recommend it favorably to housekeepers. This brush holder consists of two pairs of spring jaws extending in opposite directions from an interposed stem; one of the pair provided with transverse heads, and the other pair being semi-circular in cross-section to form sockets. With these is a sliding ring for tightening and holding the spring jaws, and a socket for the handle.

Lubricator for Saws.

A woodsaw that will grease its blade while in motion, is the patented invention of Richard J. Edwards, of Galena, Ill. The lubricating apparatus is swung from the horizontal bar of the saw frame and consists of a curved rod having at its depending separate ends grease-pad holders which allow the pads to contact with the saw as it moves back and forth. The yoke or curved portion is bent aside so as to clear the stick of wood being sawed. And all that the man who is sawing wood has to do is to attack the pile and bend to it.

Improvement for Trousers.

A patent for an invention of an improvement in trousers was recently issued to Andrew Birkhured, of Springfield, Ill. And it is an improvement which should meet the approval of the wearers of pantaloons; for it will make them last longer, and will check the disposition to bagginess which is peculiar

to the bifurcated made garment. To the usual pantaloons material these newly invented trousers have added to them inner members, shaped in cutting to form a crotch, and also to conform to the person of the wearer; the members being invited by sewing to form seams down the front and back of the trouser legs. At the thighs and knees tapes are sewed into the seams, thus giving additional strength and resistance to those portions, while preserving the shape of the garment.

Insulator.

It is a wonder that long before this there has not been used an insulator of a more improved pattern than ones we see upon telegraph poles. But there has been recently patented, by Edward Renault, of Waldo, Fla., an insulator, which seems to be a great improvement on the one now usually used. It comprises principally a metal oval frame terminating in a screw point, and is grooved from the top to near the junction of the screw. Within the oval frame, and also divided by the groove, is an insulating bulb, in the center of which is a toothed sleeve through which the wire passes, being held by the teeth, which receive their pressure from set-screws passing through the groove-divided parts, above and below the oval frame. In stringing a wire on an insulator of this kind after the latter has been screwed into the arms of the telegraph pole, it is only necessary to loose the set-screws, slip the wire through the groove, and then tighten the screws.

Combination Wrench.

There is always room for a good combination tool. It often contains much in a little space, is convenient and is a time and labor saver to the busy artisan. A combination wrench, the recently patented invention of Richard H. Daniels, of Macon, Ga., is one which possesses these qualities. It comprises in part a handle and wrench portion—the latter having a movable and a fixed jaw, with terminal serrated clamping faces, used for holding small pipes—a pipe-cutting or die stock and stay-bolt pivoted at one end of the fixed jaw, having a threaded end movable through a guide in the pivoted jaw. In the rear portion of the jaws there is an oval-shaped clamping-opening for large pipe.

Nut Lock.

A patent for a nut lock has been granted Wallace N. Kenyon, of Bridgeport, Conn. The invention is for securing the nut into immovable position, and provides for the purpose a runway in the sides of the nut extending across the threads; two balls arranged oppositely on the threaded portion; springs for forcing the balls toward the central portion of the nut, and a kicking-post for the springs. So that when the nut is once screwed on it is held firmly, and is not liable to come loose from jar. Considering the many accidents that have resulted from loose bolt-nuts, anything which will effectually prevent this happening should be of much value.

Storage Battery.

The value of an electric storage battery depends largely its ability as a power-maker and relative cost of the materials employed. And when a battery is intended for furnishing power for vehicles, the minimum of weight must be a particular point sought. In this field of invention Alvaro S. Krotz, of Springfield, Ohio, has been given a patent—for a secondary or storage battery. It has, among other good features, a series of supporting plates of insulating material, having slotted openings with upturned edges, between which openings and edges, are arranged electrodes forming the active material. The plates are placed one alone the other, with the openings in one plate in line with the electrodes of the adjacent plates.

Animal Trap.

A good animal trap is one for which a patent has lately been granted James G. McCoy, of Suisun City, Cal. This consists of a part-wire cage having a perpendicularly-sliding gate, with a tilting platform connected with the former by tripping mechanism, so that when the platform is tilted the gate will close the trap. There is provided a bait holder and suitable mechanism in connection with the platform, the releasing of which means the loss of liberty to the venturesome animal.

Roller-Bearing Car-Wheel.

To get smooth running, and to prevent friction, in machinery, is the earnest desire and effort of the mechanical inventor; for in this to a great measure, speed and durability are concerned. In this line

comes the invention of John J. A. Miller, of Denver, Cal., to whom a patent has been issued for a roller-bearing car-wheel. The axle of this wheel has a disk secured to it, with a double circle of rollers surrounding its periphery; a renewable ring tread portion, with a chamber for fitting the rollers and disk, and a renewable ring to fit into the periphery of the chamber.

Gate.

Charles W. Burrington, of Tomahawk, Wis., has invented and patented a turnstile gate, in which are features that should recommend it to property owners. The gate is composed of a post having a vertically-sliding, spring-controlled bar to which are attached pivoted arms, extending on both sides of the post. The arms are slotted in their lower ends for receiving a rod-fulcrum on which they slide up or down, spreading or closing as the sliding bar is raised or lowered.

Bed-Slat Holder.

The proneness of bed-slats to fall down from their sockets just when the tired person gets into his resting place, has induced Rufus G. Nelson, of Punxsutawney, Pa., to invent and patent a device to prevent this aggravating occurrence, and to give comfort to the sleeper. This invention consists of a slat-holder, made of a single piece of wire, to be secured to the inner, lower part of the bedstead rail. The wire is bent to form a supporting-loop, with vertical arms resting against the side-rail of the bed and formed with an eye to receive the securing means. The wire terminals are bent around the supporting-loop to form a brace.

Tea-Infuser.

John F. Sutthoff, of Seattle, Wash., had a patent recently granted him for a tea-infuser—a simple arrangement, that no doubt will be welcome to the lovers of the cup which cheers but does not produce a too hilarious feeling. The tea-infuser is an endless, perforated cylinder provided with a vertical piston, on one end of which is piece for closing one end of the infuser; the other end being covered by a separable top. With the use of this device, the usual mixture of tea-leaves and the extract in the drinking cup, is avoided. A much desired improvement is a good tea-infuser.

Lock-Blade Knife.

A new invention of a lock-blade knife, is one for which a patent has been issued Joseph P. Jackson, of Reynolds Bridge, Conn. In this there is a feather-spring applied on the mainspring and a tumbler, in the end of the knife handle, on which the feather-spring bears. When the knife blade is opened, its lower end locks with the end of the mainspring and becomes firmly secured against accidental closing. This device, while increasing the usefulness of the knife, makes it a special friend to the young.

Pneumatic Shoe Sole.

Julia F. Bascom, of South Milwaukee, Wis. is the inventor and patentee of a pneumatic shoe sole, which should contribute to the comfort of footwear, since there are few things easier in contact than an air cushion. This shoe sole is removable, and comprises a heavy flexible shell of impervious material, having the general outline of the underside of the shoe, and has within the shell a removable, expandible bag with an inflating nozzle communicating therewith. The upper side of the outer covering of this sole is slit and laced, so that the inner bag can be removed or inserted at will.

Wheel for Vehicles.

Although so many inventions for wheels for vehicles have been patented, new, and, good ideas in this line, are continually coming out. A patent for a good vehicle wheel has been issued to Mark D. Goodwin, of Philadelphia, Pa. This is of the bicycle order, and its main features are double rims, spiral springs and plates. The latter are flexibly joined together, each being supported by a spring, which is bolted to the inner rim. The plates are flanged and form the outer rim around which extends a rubber tire, held into place by the plate flanges.

Sidewalk.

There has long been need of a good cement sidewalk, one that will wear well and that will not easily crack, from cold or heat. In the recently patented invention of Willard P. Beckwith of Milwaukee, Wis., there seems to be a good idea in this connection. The invention relates to a sidewalk made of cement laid upon and between sections of T-iron, beams and tubes. This should give a very solid, even mass, not liable to break up.

PATENT OFFICE NOTES.

Personal.

Dr. D. J. Kelly has been spending two weeks at Atlantic City.

Miss M. E. Ferry is visiting Boston and other northern cities.

L. Z. Thompson is spending his vacation quietly at Chapel Point on the Potomac.

Mr. Charles Arnold, division 11, may be found for the next month at Cape May.

J. H. Griffin is away spending his vacation at Worcester, Mass., his old home.

E. W. Vaill, jr., is sojourning at Portland, Me., where he will stay for about a month.

H. W. Bowen is at Adams, Mass., where he will use up the time allotted to him for vacation.

Geo. W. Stoker is contemplating a trip to Atlantic City for a three weeks visit from September 1.

Miss Emma Heald, stenographer in division 34, is visiting with friends at her home near Boston, Mass.

I. P. Disney, from division 11, is putting in his vacation time fishing on the James River in Virginia.

Mr. C. A. Mason, division 21, is spending his vacation at Ocean City and will put in his entire leave there.

H. H. Allen, of division 31, will go to Worcester, Mass., and other northern points for about twenty days from the 15th.

Mr. M. Baldwin can be addressed for thirty days at Cape May, N. J., where he is spending his vacation bathing and fishing.

J. M. Coit of the patent office is spending his vacation in Cheran, S. C., at his old home and is busy renewing old acquaintances.

J. P. Harris believes in an outing for a thorough rest from office duties, and is spending his vacation in the mountains of West Virginia.

Mr. L. M. Sanders is taking his annual vacation and is spending the time renewing old acquaintances at his former home in Michigan.

Mr. A. A. Buck, from division 26, is visiting at his old home in Maine. He has been gone about two weeks and will return on the 14th inst.

N. L. Bogan has just returned from an extended tour through the north, ending at Atlantic City where he lingered ten days by the sea shore.

Mrs. N. J. Hedges has been quite ill with a peculiar affection of the eyes. She contemplates an extended trip through the north from August 15.

Mr. Geo. R. Simpson, examiner in chief of division 34, has gone to far Iowa, his former home, where he will spend his thirty days annual leave among old friends.

Miss A. Jackson will visit the Grand Manon again this season where she derived such good healthful results on her visit last year. Her stay will be about thirty days.

Capt. H. L. Prince, librarian of the patent office, will leave on Monday, August 9, for his vacation, going to Maine where he will spend his thirty days leave with his family.

Miss Virginia B. Bell in the Official Gazette division of the patent office has gone on her annual vacation of thirty days to Hyannis, Mass., where she will visit with her sister Mrs. P. T. Dodge.

Dr. G. S. Ely, principal examiner in division 31, will spend his vacation at Watkins Glen, N. Y., starting on the 12th, where he will join his family who have been sojourning there for a couple of months past.

Mr. Winter who has been assisting in the prosecution of Wedderburn & Co., is one of the anxious ones awaiting leave of absence as he intends joining his family in Duluth, Minn., and spend his annual vacation there.

Chief of the Gazette division of the patent office J. W. Babson, will leave Sunday, August 8, on his summer vacation, for Brooksville, Maine, where he goes to join his family and will spend the entire month at the old family homestead and renewing old family friends.

Walter D. Groesbeck, assistant examiner in division 13 is taking part of his vacation and is spending the time riding through Canada on a bicycle. Mr. Groesbeck is a thorough metal working artist having been for some time superintendent of the machinist department of the Michigan Agricultural College prior to his entrance in the patent office.

Division 13 is devoted to this class of work and his superiors speak in the highest terms of his efficiency.

An Important Decision.

Commissioner Butterworth has made a decision barring patent office examiners from filing applications for inventions. The decision was made in the case of John H. McElroy formerly assistant examiner. Mr. McElroy filed an application for an improvement on a voting machine and immediately after resigned and paid his fee of \$15 for an examination of his invention. His application was rejected on authority of a section of the revised statutes, which says:

"All officers and employes of the patent office shall be incapable, during the period for which they hold their appointments, to acquire or take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by the office."

Mr. Butterworth says the chief question is whether the spirit of the statute is intended to reach and embrace only an interest in a patent that has actually been issued. He thinks the statute has such an application.

MUCH good to the inventors generally will be accomplished through the Wedderburn & Co., expose in the patent office. There are many other attorneys practicing before that department whose methods of doing and securing business is open to censor and who will now take warning and no doubt change their modus operandi.

THE hearing of the Wedderburn & Co., disbarment proceedings now going on before Assistant Commissioner of Patents Greeley will have a tendency to improve the morale of all attorneys practicing before that department.

THE INVENTIVE AGE is the friend and champion of inventors and intends to expose any and all attorneys whose business methods are considered unprofessional.

The Japanese Patent Laws.

Information regarding the patent laws of Japan has been furnished us by Mr. Jokichi Takamine, M. E., of Chicago. He was for some time the acting commissioner in charge of the Imperial Japanese patent office, and is thoroughly familiar with the workings of that office. Inventions, trade-marks and designs can now be registered and protected in Japan. The term for which patents are issued is for five to fifteen years at the option of the applicant and the rights of a patentee descend to the heirs. Very nearly the same rules regarding restrictions, infringements, transfers, appeal and forfeiture are in force that are to be found in western countries. Mr. Takamine has opened an office in Chicago and will act as attorney in securing patents in Japan. He has the best connections in Tokio, and is supplied with all the official blanks and stamps so that the business can be attended to with the greatest dispatch. Mr. Jokichi is a mechanical engineer widely known in the United States, and is famous as the inventor of the celebrated Takamine processes and Taka-Diastase.—*Modern Machinery*.

Barnard's Air-Ship.

The air-ship or dirigible balloon has achieved another successful flight, this time in connection with the centennial exhibition at Nashville, Tennessee. Prof. N. W. Barnard, director of physical training of the Young Men's Christian association, Nashville, has been engaged for some time in the construction of an air ship which depends for its buoyancy upon a gas-inflated balloon and is driven by a single propeller. The balloon is approximately egg shaped in form, measuring 20 feet in diameter and 46 feet in length, and moves in the direction of its longer axis. The usual basket attachment is replaced by a light framework in which the operator sits and controls the mechanism. This consists of a driving axle and pedals which are geared to a propeller shaft that extends 20 feet in front of the machine and carries a propeller of very light construction. On each side of the body of the ship is arranged a kite-shaped sail about 2 feet wide by 3 feet long; and these are controllable by means of levers placed conveniently to the operator. The ship was started a little before noon and rose to an estimated altitude of about half a mile and moved rapidly to the westward. The descent was made about 12 miles from the exposition grounds, and Prof. Barnard, who returned the same night to the city, expressed himself as well satisfied with the success of the trial trip.—*Scientific American*.

Measuring the Earth.

The longest distance ever encompassed by the human vision, so far as the records go is 183 miles, between the Uncompahgre Peak, in Colorado, and Mount Ellen, in Utah. This feat was accomplished by the surveyors of the United States Coast and Geodetic Survey, who are now engaged, in conjunction with representatives of other nations, in making a new measurement of the earth. The observers on the Pacific coast have been able to signal from Mount Shasta to Mount Helena, a distance of 190 miles, but have never been able to get a response. Between the two other peaks communication has been continuous for an hour or more on several occasions. The Uncompahgre is 14,300 feet in height, while Mount Ellen is 13,400 feet. The longest distance that the human eye ever reached until this record was made was between Algiers and Spain, 168 miles. The measuring of the earth, which is now going on, is no simple task. The width of the ocean can only be ascertained by astronomical observations. The observers at Greenwich and at Washington note each night the exact moment of the rising of certain stars, and then, by mathematical calculations, turn the difference in time into distance. This is corrected and corroborated by other observations upon other stars, and by a series of experiments, which furnish an average that is approximately accurate. The difference is seldom more than a small fraction of a second, and is attributed to atmospheric phenomena. The Pacific Ocean is measured in a similar manner by joint observations with the Lick telescope, in California, and that of the Imperial University of Japan, at Tokio.—*Philadelphia Record*.

Defending a Patent.

Sir W. G. Armstrong, Whitford & Co., of Newcastle-upon-Tyne, England, English ordnance manufacturers, has filed a suit in Washington against Commodore Chas. S. Norton, commandant of the Washington navy yard; Commander Edwin C. Pendleton, in charge of the naval gun foundry at the yard, and Commodore Charles O'Neil, chief of the bureau of ordnance, claiming \$10,000 damages because of alleged infringement of the plaintiff's patent on a certain new and useful improvement in trunion bearings for ordnance and gun mountings.

The plaintiffs allege that June 1, 1887, the original inventor of the said improvement, Ralph T. Brankston, made application for a patent thereon. During the pendency of the application, so they say, Brankston assigned and sold his interest therein to W. G. Armstrong, Mitchell & Co., of England letters patent issued February 21, 1888, to the assignees, who sold, assigned, etc., to the plaintiffs the 6th of May, and the latter claim that the defendants have infringed upon their rights since January 1, 1894, at the Washington navy yard and gun foundry.

The plaintiffs are represented by attorneys Baldwin, Davidson and Wight.

Curious Suspension Bridge.

A remarkable engineering work, of quite a novel character, is being commenced at Rouen, in France. It is called a "point transbordcur," and is intended to serve all the purposes of a bridge without interfering with the free passage of shipping, even though the masts be 150 feet high. Two high towers are to be erected, one on each bank of the Seine, about three-quarters of a mile below the lowest bridge existing at Rouen. Between these two towers a narrow iron chain bridge will be suspended. The height from the quays is to be not less than 160 feet. Lines of railways are to be laid upon the chain bridge, upon which a light carriage or platform on wheels will run. This is to be dragged from one tower to the other by steel ropes passing over wheels and worked by steam or electricity. From this wheeled platform will be suspended by steel hawsers, the transbordcur, at the level of the quays (*i. e.* 160 feet below the level of the chain bridge), and this transbordcur, or suspended carriage, will carry passengers and vehicles from one bank to the other.—*Trade Journal's Review*.

The Dunham Cash Register.

There are on exhibition by the patent selling agency of Fletcher & Evans, No. 509 14th street, this city, several meritorious inventions, among them the "Dunham Cash Register." Mr. Dunham is a Washingtonian and his invention combines simplicity, durability, efficiency and cheapness—it being made to sell for \$35 against \$150 to \$350 for machines of other designs possessing no greater merit. It is built in a full nickel case and presents a handsome appearance.

DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Decisions of Commissioner.

Ex parte Sanche; decided June 15, 1897.

PATENTABILITY—DEGREE OF UTILITY.

The degree of utility of a device is unimportant in determining whether a device be patentable. If the invention is not frivolous or prejudicial to the public and has any degree of usefulness, no matter how slight the practical utility, then within the meaning of the law it is useful and may be patented.

SAME—PATENT OFFICE ARBITRARILY DETERMINING THEORY.

The degree of utility is not a question for the patent office to arbitrarily determine. The mere assertion of theorists that they do not believe that a device possesses utility cannot prevail against the evidence of reliable witnesses who have by tests demonstrated that it does possess such utility as is claimed for it.

Ex parte Atwater; decided July 31, 1897.

REHEARINGS—PETITION FOR, CONDEMNED.

While there are undoubtedly cases in which, from their great importance or the novel or doubtful character of the questions involved, rehearing may well be had and may properly be sought, yet it should be understood that the court always seeks in the first instance to bring the best judgment which it possesses, aided by all the lights which counsel give it in their briefs, and arguments, to bear upon the causes submitted to it for its determination. If in such determination it commits error, the mistake is one of judgment, to which all human action is liable; but it is expedient in the interests of justice that the determination when made should have the element of stability. (Quoting *Hien v. Pungs* 78 O. G. 484.)

Casler *et al.* v. Edison; decided July 31, 1897.

PUBLIC USE—DATE OF CLAIM—NEW MATTER—APPEAL TO THE EXAMINERS-IN-CHIEF.

The question as to whether a claim for a device different from that originally claimed may be introduced into a case more than two years after the device covered by the later claim has been in public use is a question of new matter which goes to the merits and is appealable in the first instance to the Examiners-in-Chief.

Decisions of the U. S. Courts.

U. S. Circuit Court of Appeals, Ninth District, *in re* Von Schmidt v. Bowers. Appeal from the Circuit Court for the Northern District of California.

CLAIMS CONSTRUED—NOT FUNCTIONAL.

Said claims are not functional in form, nor are they claims for results, nor are they limited to any particular form of construction of the elements which make up the combinations, but they are broad generic claims, without any limitation as to the form of construction of the particular elements; and all subsequent machines which employ substantially the same means to accomplish the same result are infringements, notwithstanding the subsequent machine may contain improvements in separate mechanism which go to make up the machine.

SAME—NOT FOR AGGREGATIONS.

The Bowers claims are not mere aggregations, because the result produced is the product of the combination in which each element affects the action of all the others, and all of the elements co-operate in the one result of severing by the forward and side action of the machine the material in place where it is not wanted and depositing it in another place where it is wanted.

CLAIMS—COMBINATION—AGGREGATIONS.

No combination of elements that so operate can be regarded as a mere aggregation, for each one has a direct influence upon the action of each of the others, the result necessarily being the product of the combination itself and not a mere aggregate of several results each the complete product of one of the combined elements. (*Hailes v. Van Wormer*, 5 O. G., 89; 20 Wall., 353; *Royer v. Roth*, 49 O. G., 1897; 132 U. S., 201; 10 Sup. Ct. 58; *Reckendorfer v. Faber*, 10 O. G., 71; 92 U. S., 347; *Beecher Manufg. Co. v. Atwater Manufg. Co.*, 31 O. G., 306; 114 U. S., 524; 5 Sup. Ct. 1007.

CLAIM—CONSTRUCTION OF.

The terms "inward delivery" in a claim for an excavator have direct reference to the mechanism itself, and cannot properly be limited to the description or effect of such mechanism. The clear meaning of a claim to "an excavator having inward delivery" or "with inward delivery through itself" is an excavator so constructed as to produce an inward delivery.

INTERFERING PATENTS—ANTICIPATION—TIME OF.

The defence of anticipation to be successful must be established as of a date anterior to the patented invention, not merely prior to the application for or date of the patent.

SAME—EARLY DRAWINGS AND MODELS.

As against the defence of anticipation the patentee may show the fact of invention by drawings, sketches, models, or any other competent proof.

ABANDONMENT—DELAY IN APPLYING FOR PATENT—REASONABLE DILIGENCE—STANDARD OF PROOF OF.

Delay in applying for a patent after an invention is made will not constitute abandonment where the inventor has used reasonable diligence to perfect the invention and avail himself of its benefits, and there is no general standard by which such diligence is to be established; but it must be reasonable under all the circumstances of the particular case. The character of the invention; the health, the means, the liberty of the inventor; his occupation upon kindred or subordinate inventions—are proper subjects for consideration. Such reasonable diligence does not involve uninterrupted effort nor the concentration of his entire energies upon the single enterprise.

INFRINGEMENT—DEFECT IN ORIGINAL MACHINE.

The fact that the first machine built by a patentee whose patent is sued on was not successful in operation is unimportant and no reason for denying him relief, especially where his subsequent machines have proved successful in practice.

U. S. Circuit Court, Northern District of Illinois, *in re* Gindorff *et al.* v. Deering & Co. *et al.*

PROCESS—FUNCTION OF MACHINE—MANUAL OPERATION.

Where, except for the described functions of a machine, there is nothing stated in a claim save the manual transposition or turning of the articles undergoing operation, so that a fresh part may be treated, such transposition, superadded to the function of the machine, does not make the process which the patent law contemplates.

INVENTION—MECHANICAL SKILL.

Though a chuck at first sight seems to present nothing beyond a simple duplication of an old chuck, the fact that the single chuck was used for many years, while a need was felt for something to do the work which the double chuck now performs, and the further fact that defendants as soon as they

heard of the improvement adopted it, are sufficient to establish original conception on the part of the inventor and not mere skill.

U. S. Circuit Court of Appeals, First District, *in re* American Sulphite Pulp Co., v. Howland Falls Pulp Co. Appeal from Circuit Court for District of Maine.

PIONEER INVENTOR—TO WHAT ENTITLED.

A pioneer inventor is entitled to a patent covering his adaptation of the forces in matter which he has discovered and the compositions with which he has successfully experimented and such as would naturally develop in the growth of the art without invention, as well as those which he has described.

U. S. Court of Appeals, Sixth Circuit, *in re* Thomson Houston Electric Company v. Ohio Brass Company *et al.* Appeal from the Circuit Court of the United States for the Northern District of Ohio.

Letters Patent No. 495,443, granted April 11, 1897, to Charles J. VanDepoele, for improvements in suspended switches and traveling contacts for electric railways, not held invalid upon an appeal from a preliminary injunction heard upon affidavits and without a full review of the art because of the prior issuance to the same inventor of Patent No. 424,695, covering inventions of a similar character.

TWO PATENTS—EARLIER PATENT FOR IMPROVEMENTS—VALIDITY.

Where a patent for mere improvements was granted during the pendency of an earlier application for the broad invention, *Held* that a patent subsequently granted on the earlier application is not invalid, though the elements covered by its claims were shown and described but not claimed in the earlier patent. (*Cases of Suffolk v. Hayden*, 3 Wall, 315, and *Barbed Wire Patent*, 58 O. G., 1555; 143 U. S., 280, discussed.)

SAME—EXTENSION OF MONOPOLY—INFRINGEMENT—DAMAGES.

Where a patent for an improvement issues while the application for the broad invention is pending in the Patent Office, *Held* that the monopoly in the broad invention is not extended. The patent for the improvement expires in seventeen years. After that any one may use the improvement without infringing the patent issued upon it. If he uses the improvement without infringing the patent issued upon it. If he uses the improvement without a license to use the main invention, he is liable for the infringement, not of the patent for the improvement, but of the patent for the main invention, and in estimating the damages for the same the value of the main invention, and not that of the improvement, would be the basis for estimating the damages.

SAME—PATENTS ISSUING TO DIFFERENT OR SAME PARTIES.

It can make no difference in considering this question whether the patent for the improvement issues to the patentee of the main invention or to another. The right of the public to use the improvement when the patent on it expires is exactly the same whether the patentee of the two inventions are the same or not, because in each case the improvement can only be used with the license of the patentee of the main invention.

PRELIMINARY INJUNCTION—APPEAL—WEIGHT OF DECISION OF LOWER COURT.

On an appeal from an order granting a preliminary injunction the case is ordinarily to be treated in the appellate court from the standpoint from which it was viewed by the circuit court, and the decision on the merits by a circuit court of another circuit sustaining the patent is therefore usually of controlling weight in the appellate court, as it should be in the court below.

CONTRIBUTORY INFRINGEMENT—SUPPLYING ELEMENT OF A COMBINATION.

Where one makes and sells one element of a combination covered by a patent, with the intention and for the purpose of bringing about its use in such a combination, he is guilty of contributory infringement and is equally liable to the patentee with him who in fact organizes the complete combination.

SAME—INTENT OF PARTY SUPPLYING ELEMENT—INJUNCTION.

Where a party makes a device which is adapted to be used only in a patented combination and is offering said device for sale to the public, he is legally presumed to intend the natural consequences of his act, and it is therefore *Held* that he intended that the device made should be used in the patented combination, and an injunction will be granted.

SAME—EFFECTIVE MODE OF PREVENTING INFRINGEMENT.

Many of the most valuable patents are combinations of non-patentable elements, and the only effective mode of preventing infringement is by suits against those who by furnishing the parts which distinguish the combination make it possible for others to assemble and use the combination and who by advertisement of the sale of such parts and otherwise intentionally solicit and promote such invasions of the patentee's rights.

SAME—LIABILITY.

A party may furnish parts for repairing and renewing a patented combination; but when he does so he must ascertain, if he would escape liability for infringement, that the one buying and using them for this purpose has a license, express or implied, to do so.

Thomson Houston Electric Co., v. Hoosick Railway Co.: U. S. Circuit Court of Appeals—Second District.

TWO PATENTS FOR SAME INVENTION—SCOPE OF CLAIMS—SECOND PATENT VOID.

Where two patents are intended to and do secure to the patentee the same general inventions, differing only in the scope of the claims, the second patent is inseparably involved in the matter embraced in the first patent and is void. (Citing *Miller v. Mfg. Co.*, 151 U. S., 198; 66 C. G., 845.

Books and Magazines.

The firm of H. & W. Pataky, solicitors of foreign patents, Berlin, with branch office in New York, are the authors of a telegraphic code for the use of attorneys and others in communicating in patent matters between this and the various foreign countries. It is a book of 130 pages, comprising a list or code of words arranged alphabetically with a view to easy reference. By its use it is possible in a few words to communicate fully with any foreign country regarding any feature of an invention or preparation of patent case. This work can be had by practicing patent attorneys free by addressing the publishers, 628 Temple Court, New York.

Cast Steel Guns for the Government.

The Otis Steel Co., of Cleveland, has a contract from Dr. R. J. Gatling, of Hartford, Conn., for casting a breech-loading steel gun, which he is to furnish the United States government. Dr. Gatling's gun is designed to replace those which have so long been manufactured for government uses, composed of an inner tube over which rings are shrunk, and to replace, also, the wire guns of familiar pattern. Dr. Gatling maintains that a steel gun, made in a single casting and bored, can be made that will stand all the tests to which the others are subjected, and a congressional appropriation of \$40,000 is available for demonstrating the correctness of his claims. The experimental gun will be built at the Otis Steel Co.'s plant in the next few months. It will have an eight-inch bore and will be 23 feet long. The completed gun will weigh when mounted about 25 tons. For boring out the casting a boring machine is now being built by the Kilby Mfg. Co., of Cleveland. Consideration is also being given by the government to the casting in steel of mortars for coast defense, and an appropriation has been made for experimental work in this direction also. The cost of the cast steel guns, it is estimated, will be about half that of the built-up guns.

The Eophone.

The practical value of the eophone, an instrument about which so much has been said and written, would appear to be confirmed by the Secretary of the Treasury's call upon congress for some twelve thousand dollars in order to place them on revenue cutters. As is well understood the eophone is a sound catching device, its purpose being the determination with all possible accuracy, in a fog or darkness, of the location of sound, both as to direction and distance. It is formed of two bell-mouthed receivers, placed one on each side of a sheet of metal or other material, extending some distance in front of the receiver. A tube from the left-hand sound receiver is placed at the left ear of the person operating the eophone, and a tube from the right hand receiver at the right ear. When the sound is heard with equal plainness in both ears, the instrument is pointing in the direction of the sound; when, however, the sound is heard with greater plainness in one ear than in the other, the instrument is pointing at an angle with the direction of the sound. The sensitiveness possessed by this peculiarity of construction, even under the most strained circumstances, is said to be very remarkable. The instrument is attached to the top of the pilot house, the tubes from the receivers being brought inside the house for use by the pilot.

Inauguration of the Commercial Museum.

The opening of the Commercial Museum at Philadelphia was much more than an ordinary event in the commercial history of the United States, says Age of Steel. In a national and international sense, it had a broad and vital significance. Fifteen nations were represented at its inauguration, and the occasion was made the more impressive by the presence and co-operation of the President of the United States. The great work of which this was the formal introduction has been the task of able and far-seeing business men, who, without stint of time or energy, have devoted themselves to the commercial interests of the Western hemisphere. The organization effected is one of the most complete its kind in the commercial world and the task to which it has set itself is in scope and purpose as broad and wise as the statesmanship of business could make it. It embodied the idea of close and natural commercial relationships with the countries beyond our Southern boundaries, and not only that, but by a complete exhibit of the leading products of our own and other nations, and responsible information as to prices, tariffs, transport rates and routes, etc., to give the American manufacturer information not obtainable without considerable trouble and cost elsewhere. It can be readily seen that a program of this kind involved considerable labor, and could only be successfully carried out by the active co-operation of representative business men in the various countries concerned. That this has been accomplished, the inaugural ceremonies at Philadelphia fully demonstrate.

Pens will never stick in a penholder recently patented, which consists of a round wooden handle with a curved metal clamp to grasp the pen when it rests against the side of the handle, the clamp being held by a sliding ring.

To prevent the hands of cyclists from becoming burned while riding in the sun a wire frame, covered with a light fabric is attached to the bar near each handle to project over the hands and keep the sun off.

Captain Patrick O'Farrell.

Capt. Patrick O'Farrell, one of the most prominent patent and claim attorneys practicing before the various executive departments of the Government in Washington, was born in Ireland, but came to this country at the breaking out of the late rebellion for the express purpose of enlisting his services for the cause of the Union. He entered the service as a private in the 69th New York Volunteer Infantry and after three years of active and meritorious service he was honorably mustered out, having during that time, by his bravery and gallantry, risen to the rank of captain of his company. He was wounded three times in action and was breveted captain for gallant and meritorious services in front of Petersburg.

For a number of years subsequently he held a position in the U. S. Pension Office from which position he was honorably dispossessed by President Cleveland, for "offensive partizanship," after which he began the practice of a patent and claim attorney, having graduated from the National Law School of Washington. The years he has devoted to his chosen profession have given him an experience enjoyed by few attorneys in the handling of patents and claims and he now occupies one of the largest suites of offices in the city at 1425 New York avenue. He employs a large and efficient clerical force to assist him in his multifarious and onerous



duties and notwithstanding the fact that he has one of the largest patent and claim businesses in the United States he gives his skilled professional attention to all branches of the business, and to his activity and promptness perhaps more than to any other fact may be attributed his success.

Captain O'Farrell practices before the United States Supreme Court and the several tribunals of justice in the District of Columbia and procures patents in all foreign countries. His experience has been ample, his abilities have been successfully tested and his friends are legion both in and out of his practice. The papers filed by him in the interest of his clients are distinguished for accuracy, mechanical and scientific research and a thorough knowledge of the case in hand.

The Captain has developed an important and influential connection as counsel for numerous large manufacturing concerns and prominent inventors in different parts of the country. He has recently taken his son, Patrick Henry O'Farrell and O. Harry Fowler into copartnership with him in the practice of patent law under the firm style of O'Farrell, Fowler & O'Farrell. This has been made necessary by his large and increasing patent practice.

Recently the Captain purchased the pension claim business of the Wedderburn Company, comprising some 8,000 or 9,000 cases, and he will endeavor to push the neglected work of this company to a successful termination.

As a prominent Grand Army man and a member of the military order of the Loyal Legion, Captain O'Farrell is well known from the Atlantic to the Pacific and from the Gulf of Mexico to the Dominion of Canada. His religion is of the kind that finds

expression in his good works and he enjoys the society of an estimable helpmate in Mrs. O'Farrell and in his charming daughter, Miss. Mary, who with his son make up the members of one of the happiest family circles in this city.

In the recent campaign that resulted in the triumph of the republican party Captain O'Farrell took a leading part and was undoubtedly one of the most eloquent, logical and forcible speakers in the field. His little book "O'Farrell's Financial Dialogue," was considered one of the most effective and logical arguments against the "16 to 1" free silver heresy that appeared in the campaign. A former resident of Connecticut, Captain O'Farrell enjoyed the confidence and warm personal friendship of the late Gov. Marshall Jewell, whose death the Captain mourned as that of a dear friend.

The Progress of Invention.

The London Post, in a long article on the progress of the world during Queen Victoria's reign, says:

The national progress during the present reign is so vast, so stupendous, and so far reaching that it stands alone, not only in the annals of Britain, but in the annals of the world. So amazing is the progress of invention since 1837 that no civilization has its counterpart. The advancement and refinement of the Assyrians, the Egyptians, and Romans tended towards luxurious rather than to utilitarian ends; but the keynote of the Victorian era is the saving of human labor. The greatest discovery of the age has been that force, like matter, is indestructible, and that force, although its power may be intensified and pressed into the service of mankind, cannot be created. Herein lies the secret that Victorian scientists have learned, and by means of which they have, like Puck, "put a girdle round about the earth in 40 minutes."

Next to the use of electricity, which revolutionized street and domestic lighting by superseding the gas whose properties were only partially understood at the time of the Queen's Accession, the application of steam as the motive power of machinery has entirely altered the condition of the working-man, and has incredibly increased the manufacturing output of the country. Dr. Darwin in 1789 foreshadowed the general uses to which the newly discovered force would be put.

"Soon shall thy arm, unconquer'd steam, afar
Drag the slow barge or drive the rapid car;
Or on wide-waving wings expanded bear
The flying chariot through the fields of air,"

he says, in his somewhat pompous "Botanic Gardens," and although the prophecy of the last two lines has not as yet been successfully fulfilled, Mr. Hiram S. Maxim is devoting his energies in its direction. Progression was the first object to which steam was seriously applied, and that being successfully attained the inventor used it as a means of propulsion. The results were comparative at the outset, but evolution has followed evolution, and now scattered throughout the length and breadth of the land there are factories where tireless machinery, possessing all the skill, the nicety, and precision of the human hand, with incomparably greater speed, fills the markets of Britain and the world with an amount of produce that 60 years ago would have seemed as impossible as the magic marvels of a fairy tale. Nowadays it is an axiom in the manufacturing world that nothing shall be done by hand that can possibly be accomplished by machinery, and year by year new devices and ingenious inventions take the place of human power.

Nor is it only in the mercantile world that the yesterday of 60 years ago belongs to things obsolete. While invention has been busy in tunnelling beneath the waters of rivers, in bridging over estuaries and mountain passes, in building engines that speed northwards and westwards at the rate of 60 miles an hour, and reducing domestic labor, to a minimum, the Army and Navy have entirely changed their character—and that by the same means. The sailor and soldier are no longer simple sailors and soldiers. They are both highly skilled and highly trained mechanics, electricians, engineers, chemists, and scientists, learned in the supreme value of angles and the modern manner of conquering by mathematical calculation. War, either by land or sea, has ceased to be a matter of superior force: it is a strategic science, in which all the inventions of the past 60 years are employed. Dynamite, nitro-glycerine, and gun-cotton are as important to the Navy as they are to the Army, and all three are the discovery of the last six decades. From the Navy the high old wooden "deckers," clumsily fitted with marine-engines, that Her Majesty saw at her first Naval Review have disappeared, and in their place are ironclads replete with every mechanical contrivance that the age has produced for marine engineering or marine warfare. In the Army the old muzzle loaders are no more, breech-loading rifles that carry death for many miles with merciless precision being used in their stead.

But perhaps the most striking feature in this re-

markable reign is the increase in domestic comfort. Invention, while it has given a wider field for the prosecution of luxurious living, has also made daily existence easy and simple. Hydraulic lifts save the time and strain of climbing the stairs of the modern many-storied houses; electric bells save the nerve-irritating jangling once so common; telephones relieve the pressure of correspondence; in all large cities and towns a constant railway service makes living in fresh air and quietude the easiest possibility, and for Londoners the Underground Railway—one of the great engineering feats of the reign—at once aids the traffic in the crowded streets and affords a means of rapid transit from point to point of the unwieldy Metropolis. Nor is the business man less fortunate. By means of the telephone he can communicate by word of mouth not only with his agents and clients in different parts of the kingdom, but also with the French capital. His type writer saves him and his clerks hours of labor, whilst the submarine telegraph places him in touch with the money markets of the world.

During the whole 60 years of Her Majesty's reign the inventive genius of the nation has never stood still, and there is no greater glory attaching to the Crown than the contrast in this one respect alone between 1837 and 1897. The Queen has seen many changes in her long life, but the change that the fruits of invention have worked on the physical aspect of the country must be among the greatest. And hidden away beneath tall chimneys, in every factory, in every village, and every town the changes that man has wrought for man merely by mechanical skill are even more astonishing and indicative of the mechanical progress through which we have passed, and the consequent social well-being and comfort we have attained.

Famous Springs at Deer Park.

A million and a half gallons of the purest water on earth, is the daily out-put of the famous Boiling Springs in Garrett County, Maryland. In order that nothing can contaminate the Springs, one hundred acres of land surrounding it, are fenced in. In addition, a wire building covers the Springs, so that leaves cannot fall into the water. It is from these extraordinary Springs that Deer Park Hotel receives its water supply, the water being piped direct to the hotel. The medical fraternity now concede that in the matter of health, the question of pure water stands at the head and front. No summer resort combines so many healthful features. The air is wonderfully pure and invigorating; cool nights, with absolutely no mosquitoes; the finest cuisine, with perfect sanitary arrangements, makes Deer Park Hotel the ideal resort.

A Good Thing for Some One.

Mr. Arthur E. Dowell, of the firm of Alexander & Dowell of this city is not only a patent attorney but an inventor as well. He has a patent now pending on a simple and inexpensive device to protect pantaloons from being soiled by bicycle riders—an improvement on the clasps now in use in that this one will not crease or destroy the shape of the pantaloons leg. It ought to prove universally popular with bicycle riders, and as Mr. Dowell is anxious to give this class the speedy benefit of his invention he will dispose of the whole or a part interest at a nominal figure to someone who can push the introduction and sale of the device. It is so simple and so necessary its popularity ought to be apparent at a glance.

Playing the Country Press for "Suckers."

The National Recorder, Washington, D. C., has a word making contest which publishers are asked to aid by inserting an advertisement and clubbing their papers with the Recorder at a nominal sum. Prizes to the amount of \$7,300 are to be given to 325 successful contestants. The scheme if legal, has the appearance of being all right for the Recorder, but it is doubtful whether there is anything in it at the publishers' end of the game. All such advertising dodges, to swell circulation, are somewhat stale and are of doubtful value at best. The paper not taken, paid for and read for its merits, the public have long since learned, is not worth taking out of the post-office.—*The Publishers' Guide.*

A new automatic machine for putting stamps on envelopes consists of a revolving drum, on which a long tape of stamps is pivoted and a felt pad or sponge filled with water to moisten the stamps as they are drawn from the drum, the envelopes being placed in a row in the machine and sliding into position one at a time for the stamp to be attached by means of a pad which strikes it at the proper time.

DIRECTORY OF PATENT SOLICITORS.

Alphabetical list of practitioners of good standing before the Patent Office, and whose experience, skill, and professional integrity commends them to the favorable consideration of inventors, manufacturers, promoters and others. All are members of the Patent Law Association, of Washington, D. C., having for its object the application of honest and correct methods in Patent Law Procedure and the encouragement of legislation calculated to protect American inventors and dignify and elevate the Patent System.

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BENJAMIN, FREDERICK—
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BROWNE, ARTHUR S.—
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BROWNE, FRANK L.—
Pacific Bld'g, Washington
CALVER, HENRY—
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DODGE, WM. C.—
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DOOLITTLE, WM. H.—
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KEMON, SOLON C.—
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KNIGHT, HERVEY S.—
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LYONS, JOSEPH—
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MCGILL, J. NOTA—
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DEPARTMENT NOTES.

Under this heading will appear the latest orders, amendments to the rules of practice before the Patent Office, list of disbarred attorneys, and bulletins of instruction issued from the Patent Office for the observance of patent attorneys and information of inventors.

Amenment to the Rules of Practice.

Rule 17 of the Rules of Practice, approved June 18, 1897, has been amended to read as follows:

17. An applicant or an assignee of the entire interest may prosecute his own case; but he is advised, unless familiar with such matters, to employ a competent attorney, as the value of patents depends largely upon the skilful preparation of the specification and claims. The office cannot aid in the selection of an attorney.

A register of attorneys will be kept in this office, on which will be entered the names of all persons entitled to represent applicants before the patent office in the presentation and prosecution of applications for patent. The names of the following persons will, upon their written request, be entered upon this register:

(a) Any person who at the date of the approval of the present rules of practice, June 18, 1897, was engaged in the active prosecution as attorney or agent of applications for patent before this office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(b) Any attorney at law who is in good standing in any court of record in the United States or any of the states or territories thereof, and shall furnish a certificate of the clerk of the United States, state, or territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(c) Any person who has been regularly recognized as an attorney or agent to represent claimants before the department of the Interior or any bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the patent office.

(d) Any person not an attorney at law who shall file a certificate from a judge of a United States, state, or territorial court duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the patent office.

(e) Any firm which at the date of the approval of the present rules of practice was engaged in the active prosecution as attorneys or agents of applications for patents before the patent office or had been so engaged at any time within five years prior thereto; provided such firm or any member thereof is not disbarred; provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall if required, furnish information as to one or more applications prosecuted before the patent office by them.

(f) Any firm not entitled to registration under the preceding sections who shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent a certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

Official Certificates of Title.

The commissioner orders that all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently completed digest of irregular assignments.

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Women Inventors.

The patent office has compiled a list of women inventors—published in one original volume including list granted from 1790 to July 1, 1888 and two appendix volumes. The INVENTIVE AGE will forward the three volumes to any address for \$1.

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library of the Patent Office:

Austria-Hungary, Barbadoes, Belgium, British Honduras, Canada, Ceylon, Denmark, Fiji, Finland, France, Germany, Great Britain, Hungary, Hawaii, India, Italy, Jamaica, Japan, Leeward Islands, Luxemburg, Malta, Mauritius, Mexico, Netherlands, New South Wales, New Zealand, Norway, Portugal, Queensland, Russia, South Australia, Spain, Straits Settlements, Sweden, Switzerland, Tasmania, Trinidad, Victoria, West Australia.

Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the patent office, within six months from the allowance of the application. Money sent by mail to the patent office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursdays, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Oaths of Applicants in Foreign Countries.

It is hereby directed (by the Commissioner) that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, charge d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary, Argentine Republic, Belgium, Brazil, Costa Rica, Denmark, Haiti, Honduras, Italy, Mexico, Netherlands, Norway, Peru, Portugal, Russia, San Salvador, Serbia, Sweden, Switzerland.

Applications filed in the patent office presenting oaths not executed in compliance with this order will be treated as incomplete.

The commissioner directs that hereafter all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently completed digest of irregular assignments.

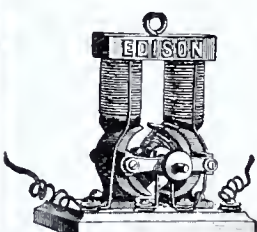
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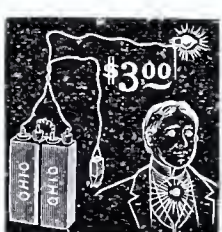
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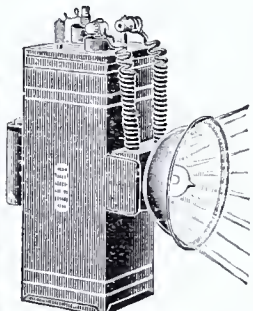
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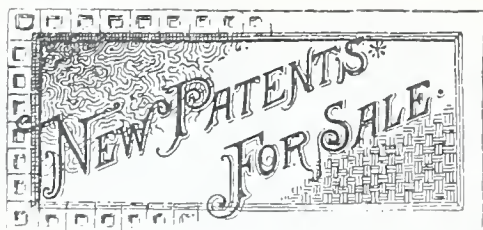
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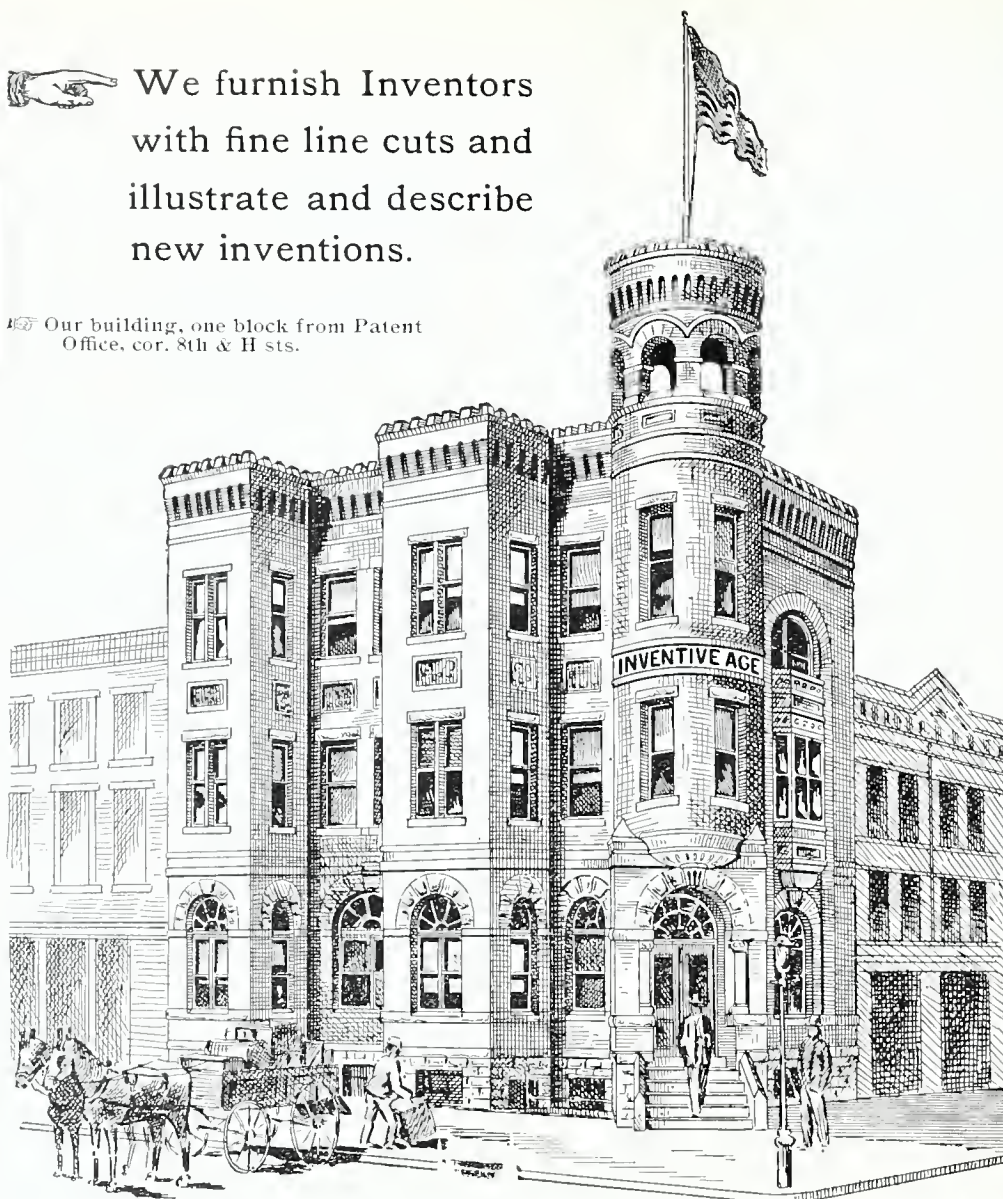
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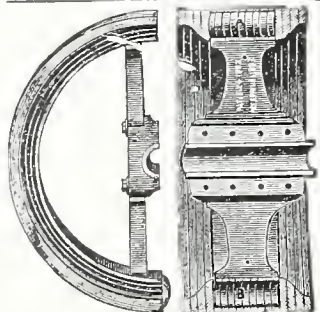
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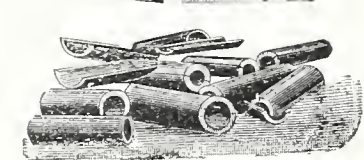
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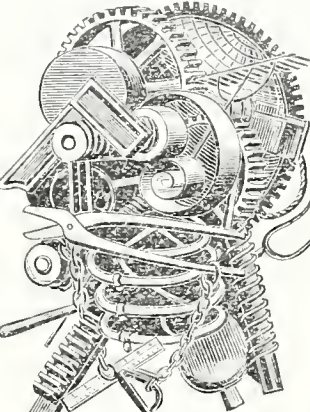
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A JOURNAL OF MANUFACTURING INDUSTRY AND SCIENTIFIC PROGRESS*

Eighth Year.
No. 9.

WASHINGTON, D. C., SEPTEMBER, 1897.

Single Copies 10 Cents.
\$1 Per Year.

THE NATIONAL CORRESPONDENCE INSTITUTE.

A Successful School.—A Review of Their Business Methods and Plan of Teaching.—With Interior Views.

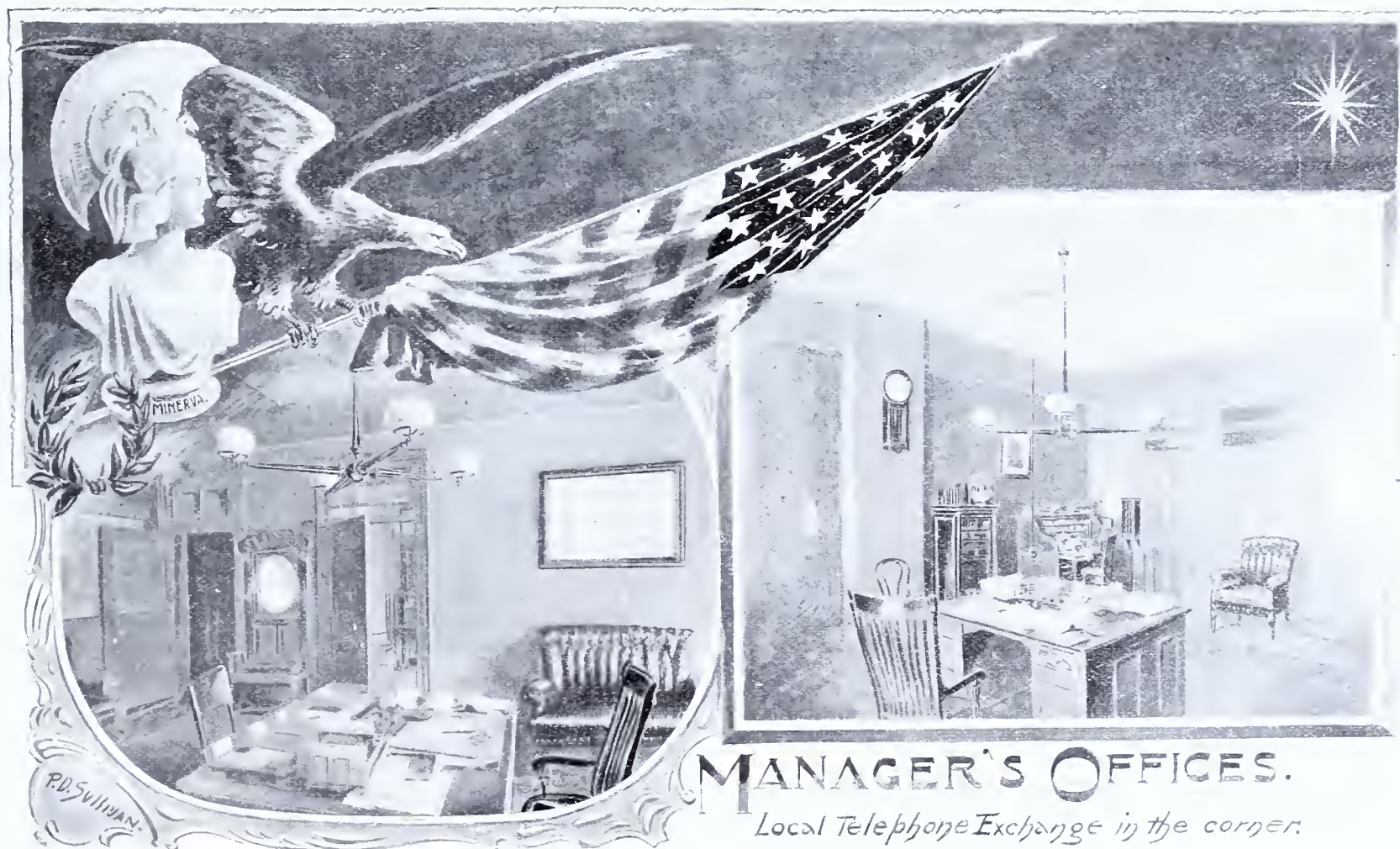
A description of Washington's correspondence college, the National Correspondence Institute, located on Seventh street in the Second National Bank building, opposite the Post Office Department is of undoubted interest. This institution has attracted much attention in all parts of the country and, as

graduated with the degree of L. L. M. Prior to his entrance into the public service he had been for a number of years engaged in educational work in different literary, business and normal schools and institutions. His experience in the Interior department, where the enormous mass of detail is so arranged as to be handled with ease, rapidity and accuracy, has been of immense advantage to him in organizing his present business into the admirable shape in which our reporter found it.

Mr. McKinley accompanied our reporter through the different offices of the Institute and explained

assorted for the students in the different classes. This matter is taken from the stock room to the mailing room on the same floor, where it is enveloped, directed, stamped and put in the mail bags.

On another floor, in two long, wide rooms, extending back the entire depth of the building, and occupying the whole space, over fifty clerks and typewriters were engaged in the work of correspondence. From the time the fall season opens until June, this number of employes will be double what it is now. On this floor the mails are received, letters opened and distributed to the proper sec-



MANAGER'S OFFICES.

Local Telephone Exchange in the corner.

it claims to have originated something, it was the business of the INVENTIVE AGE to inquire into it. A representative of the AGE called at the Institute and found so much matter of interest, that the result of his investigations is published somewhat at length for the benefit of our readers.

The reporter found the manager, Mr. McKinley, in his office, and was received by him cordially and offered every facility for collecting full and accurate information. Mr. McKinley is originally an Ohio man and was appointed to a position in the Eleventh Census of the United States, through the influence of President McKinley, when a member of Congress. He was detailed from this place to the office of the Secretary of the Interior, where he remained three years. While in the service he read law at the National University and

everything. What would most naturally have attracted the attention of every visitor at first sight was the large rooms, with high ceilings, well lighted and ventilated, handsomely furnished with capacious desks and tables and revolving chairs, connected by a complete system of interior telephones, having general telephone exchange and provided with electric bells and fans, and heated in the winter by steam.

The reception room adjoins the business office, where the accounts, book-keeping and financial matters of the concern are looked after. On the same floor is the stock room, with great piles of stationery, reams of printed blanks and forms, and copying machines. It is here that the instructions prepared by the professors and put into type written letters in another department are copied and

tions. All letters relating to business proper are sent to the business office; all questions from students relating to the respective studies are sent to one section to be answered; all finished work sent in by students is sent to another section to be corrected, graded and returned with the necessary explanations. It is here, too, that catalogues, announcements, notices, and circulars are prepared and correspondence carried on with prospective students. The views here given were taken when the employees were all out for lunch, and gives a view—not a very good one—of the rooms as they appeared at that time, and not fixed up for effect.

The system of index cards, to which Mr. McKinley called the attention of our reporter, is the key to the arrangement and classification of all corres-

(Continued on page 136.)

The Inventive Age

Established 1889.

INVENTIVE AGE PUBLISHING CO.,

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MARSHALL H. JEWELL.

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WASHINGTON, D. C., SEPTEMBER, 1897.

MANY articles of interest have been crowded out of this issue of the INVENTIVE AGE, but will be in the October number which follows in a few days.

THE September number of the INVENTIVE AGE has been delayed in issue waiting for the Commissioners decision in the now celebrated case of John Wedderburn & Co.

EVERYONE having the purification of patent practice at heart should not fail to order a large number of the September and October numbers of the INVENTIVE AGE and spread the good work of the Commissioner.

AFTER a careful investigation of the business methods of The National Correspondence Institute and mode of teaching; the INVENTIVE AGE is pleased to announce that we are satisfied that this school is in everyway thoroughly reliable.

OWING to the length of Assistant Commissioner Greeley's report to the Commissioner on the evidence in the Wedderburn case, the Commissioners opinion has been held over for the October number which will be out a few days after this number.

WE point with pride to the INVENTIVE AGE of this issue with its *boni fide* circulation of 60,000 copies going directly to that class of readers which appreciate purity in patent practice and who are always to lend their financial as well as their moral support to a paper that will champion their cause.

WE call attention to the special features in the AGE of this issue among others, the article on the article on the National Correspondence Institute. The AGE has taken especial pains to go through this school and is pleased to announce that we have found every thing about the Institution as represented by Mr. McKinley in his circulars.

THE disbarment of John Wedderburn & Company cannot be fittingly treated in an editorial article. There is a standard of courtesy, a kind of *de mortuis nihil* sentiment that is repressive of truth. To "say nothing of the dead but what is good" has always seemed illogical and wrong. Our tenderness should be toward the living. The dead have no heart, no nerves, and cannot be hurt by the most relentless veracity. There is no reason why any one who has done such a common thing as to pay the common penalty should be exempt from such edifying criticism as has been applied to buccaneers. John Wedderburn & Company may still serve one good purpose. They may be used to point

a moral and adorn a tale. Three months ago, they were the most boastful and blatant advertisers and promoters of themselves that this country has seen. Conservative professionalism stood aghast at the bigness and brilliancy of their verbal fictions. John Wedderburn, who was neither lawyer nor mechanical expert, succeeded in two years in persuading 33,000 dullards that they had inventive genius, and that he was the magician patent attorney par excellence to turn their "ideas" into gold. He buncoed the press, outwitted the Post Office Department, and swindled his clients in almost every city, town and hamlet of the United States. His career is an example of what erudite rascality may accomplish when it can bend the resources of modern civilization to its uses, get free advertising from the newspapers, pound rate mail service through publication of an advertising circular under guise of a newspaper, and make the United States Patent Office a limp and helpless accomplice in a colossal scheme of robbery.

This country will never know how much it owes to the efforts of Patent Commissioner Butterworth, Assistant Commissioner Greeley, and to Messrs. Stuffer and Winter for their successful overthrow of embattled rascality. The methods of this concern were notorious and bold. Complaints with definite sworn charges were made against it in the Post Office Department. That it was using the mails for fraudulent purposes was patent to everybody, except to the inspectors of the post office department, who are paid to guard the mails against such uses. "Oft the guilty price buys off the law." Comment is unnecessary. The special inspector who was given charge of the Wedderburn case is now under arrest and bonds. But still this paper is published and sent through the mails at pound rates, and still the post office gentlemen, inspectors and law officers of the government are complacently enjoying their salaries. Such a state of things may be winked at in Russia and Turkey as well as in the United States, but such a state of things is not to be found in England, France or Germany. Is our government, after all, loose, slipshod and corrupt, and behind contemporary civilization?

THE amount of good being done by the present Commissioner of patents, in refusing to permit incompetent and unscrupulous persons to practice before the patent office, is immeasurable.

Nearly all inventors are obliged to employ an attorney to prepare and prosecute their applications. If such person is incompetent, or dishonest, the inventor is likely to lose forever his valued invention.

Heretofore only those who stole the fees intended for the government would be disbarred, but now the intrepid Commissioner Butterworth is going farther, and demands that those who, in their advertisements, are obviously deceiving and misleading the inventive public, shall not be recognized by the patent office.

In an interview with the Commissioner by a representative of the INVENTIVE AGE he remarked:

My attention has been called to the letter heads, of certain ambitious solicitors:

These letter heads read: "Patent Office of Richard Roe, or John Dern, or whoever it may be. There is only one patent office in the United States, and that one is the Patent Office at Washington, D. C., and those who use the words: Patent Office are misleading the guileless inventor. The practice must be stopped, I cannot recommend or permit the registration of any such solicitor or attorney. They must not use devices that are calculated to deceive or mislead the inventor if they expect to have their names placed on the newly established Patent Office Register.

Section 4901 of the United States Patent Laws says: "Every person who in any manner marks upon or affixes to any unpatented article the word "patent" or any word importing that the same is patented, for the purpose of deceiving the public, shall be liable, for every such offense, to a

penalty of not less than one hundred dollars, with costs."

Now I hold that any person who prints on his letter heads, circulars, or in his advertisements the words "Patent Office," or words of like import, for the purpose of leading the inventor to believe that there is more than one patent office, should be considered as guilty of fraud as those persons who falsely mark unpatented devices.

THE high hopes of those who look to the present administration of the Patent Office to bring about an improvement of the manners and methods of patent attorneys who solicit patents through that bureau are in process of realization. During the brief administration of Hon. Benj. Butterworth, a large number of dishonest attorneys have been disbarred, and it is thought others will soon be placed in a limbo where they can no longer use the press, the mails, and the Patent Office as drag nets for gudgeons.

A new set of rules has been published defining and making more exclusive the conditions of admission to practice before the office. By these rules, the Commissioner of patents will be enabled to exclude incompetent or dishonest agents.

There is a third step in this direction which it would seem entirely proper for the Commissioner of patents to take, namely, to have the Patent Office exercise a censorship of the "literature" sent out by patent agents. There are hundreds of patent attorneys who advertise in newspapers and who issue pamphlets. Some of them have statements both in the papers and in their pamphlets that are deceptive. This may be declared of all attorneys who advertise that they have facilities for selling patents, or who claim that they can sell, or have sold patents. There are a number of agents in Washington, Philadelphia, New York, Chicago, Detroit, and other cities, who thrive by this deception, and the no less gross and mischievous deception of sending lists of "inventions wanted."

Every attorney who applies for admission to practice under the new rules should be required to file copies of such printed matter as he publishes in the papers or sends to his clients, and he should not be allowed to register until this printed matter shall have passed the censorship of a board, appointed by the Commissioner of patents. Such a requirement would result in an enormous ex-purgation of printed falsehood.

If there is anything in signs and antecedents, the Patent Office will no longer be the complaisant accomplice of those who thrive on the gullibility of inventors. It is auspicious for the fame and for the destiny of the patent system of the United States that, at this crucial time, it is in the hands of a man with prestige, with convictions, and of seasoned courage.

To Mr. F. A. Lehmann, the well known patent attorney, probably more than to any other man outside of the patent office is due the credit of having the charges against Wedderburn & Co., prosecuted to the successful end, to which all reputable attorneys have looked forward.

Mr. Lehmann was the first gentleman to place the charges in form before the patent office, and on this account was sued by Messrs. Wedderburn & Co., for \$25,000.

Mr. Lehmann is one of the few attorneys in this city who do only an associate patent business, and with his excellent facilities for such work at 639 F street, opposite the patent office, the AGE can cheerfully recommend him to any attorney who desires and honest and conscientious associate in Washington.

THE first 16-inch gun ever made in this country has been successfully cast by the Bethlehem Iron Works. Mention of this experiment was made in last month's INVENTIVE AGE. Dr. Gatting believes that a cast gun will be much more serviceable than the wire or jacketed guns now in use, and the government appropriated a sufficient sum to make the experiment.

JOHN WEDDERBURN & CO. DISBARRED.

Mr. Greeley's report to the Commissioner of Patents on the Evidence in this now Celebrated and Important Case.

The Report Showing Substantiation of the Charges made Against this Firm.
Evidence Conclusive and Sufficient, and fully up to the Expectations
of the Counsel For Plaintiffs.

AN ABLE AND VALUABLE TREATISE ON PATENT ETHICS.

SIR: I have the honor to make the following report respecting the order issued and served by you on June 14, 1897, directing John Wedderburn & Co. and John Wedderburn to show cause on or before the 26th day of June why the Commissioner of Patents should not refuse to recognize them or him as patent agents or agent.

For satisfactory reasons the time for showing cause under this order was extended to July 3. On that date the respondents, by E. H. Bond, an employee of the respondent corporation, appeared and read their answer to the order to show cause. After the reading of this answer certain documentary evidence was introduced, and on July 5, Mr. W. L. Ford, of counsel for respondents, and Mr. Bond being present, the introduction of documentary evidence was continued. This documentary evidence consisted mainly of the files and drawings of certain applications filed and prosecuted before this Office by John Wedderburn, together with letters relating thereto written by John Wedderburn & Co. to the applicants.

The hearing on the matter was continued at the request of counsel for the respondents and for satisfactory reasons to July 24, on which date the hearing was resumed before me, Mr. J. M. Wilson and Mr. Ford being present on behalf of the respondents.

The Office was represented in the investigation by Mr. C. C. Stauffer, one of the law clerks, and Mr. F. W. Winter, one of the examiners. Messrs. E. M. Marble, W. H. Doolittle, and S. T. Fisher represented the Washington Patent Law Association and Mr. William Small represented certain complainants and others.

On the resumption of the hearing Mr. Wilson, for the respondents, objected to the hearing proceeding in the absence of the Commissioner and without personal hearing by him. This objection was entered of record and the hearing proceeded with.

On July 26, the hearing having been resumed, certain affidavits were offered in evidence by Mr. Stauffer for the Office. On the objection of the counsel for respondents I refused to receive the affidavits and directed that the witnesses be called and examined orally, which was done. The examination of witnesses for the Office continued on July 28 and 29. These witnesses were Messrs. Benjamin, Gowans, Elliott, Snyder, Gillis, and Whittaker. The testimony in chief for the Office was closed on the 29th.

In order to avoid delay I directed the respondents to put in the evidence in their behalf, so far as possible, by affidavit, and continued the case until August 4 for the purpose.

On August 4 proceedings were resumed. Mr. Ford, of counsel, for the respondents presented and read at length affidavits of Messrs. Stockbridge, Smith, Funk, Acker, Abel, Gurley, McGowan, Jackson, George Byrne, H. H. Byrne, and Alexander Wedderburn, all employees of the respondents. It was then urged on behalf of respondents that the principal examiners be called for examination with reference to certain reports made by them in regard to applications filed and prosecuted in the Office by the respondents. With some reluctance, for the reason that it appeared to me that such examination would unnecessarily delay the proceedings, I

finally consented that the examiners be called, and as many of them as were desired were called and examined by counsel for the respondents.

On August 5, E. H. Bond, an employee of the respondents was called in their behalf, as a witness, Mr. Bond being examined "as an expert and a man who knows his business." (Wilson, p. 371.) Mr. Bond's examination continued through the 6th, 7th, 9th, 10th, 11th, 12th, and part of the 13th of August, most of the time being taken up with examination as to certain applications filed and prosecuted by the respondents and made exhibits herein. In the examination of Mr. Bond as to these exhibits I deemed it necessary and best to personally question him as to the state of facts indicated by these exhibits. By reason of the evident disposition of the witness to evade questions and to avoid disclosure of material facts, as clearly appears from his testimony with reference to the Sooker, Fossett, and Rucktaeschel cases (p. 380 et seq.), it became necessary to question him closely and to make my examination more in the nature of a cross-examination than would otherwise have been done.

Bond's testimony, so far as the exhibits were concerned, consisted of a statement with respect to each, of whether, in his opinion, there was anything patentable in the case; whether, in his opinion, a proper search had been made, and statements as to certain other matters appearing of record in these cases. He admitted in a large porportion of the cases as to which he testified that there was nothing patentable, and in many of them that no proper or complete search had been made. These cases being for the most part cases in which the search had been made prior to his connection with the respondents he was unable to state of his own knowledge whether or not searches had been made. He had before him the respondent's office files of the cases, and his testimony as to searches was based wholly on the penciled memoranda on these files, each memorandum, so far as searches were concerned, consisting of the abbreviations, "fav." or "unfav." These files referred to by him were not, however, put in evidence.

Certain applications not previously introduced in the record, but in which searches had been made during the present year, some of them made during the time Bond was in charge of the search department, were introduced by counsel for the Office for the purpose of showing that searches made during the present year were not proper or complete. In a number of these cases Bond admitted that there was nothing patentable, and no proper or complete search had been made.

After Bond left the stand Mr. Julihn, an employee of the respondents, was called as a witness in their behalf.

Various documentary exhibits were from time to time introduced on behalf of the respondents, all of which appear upon the record.

At the conclusion of the testimony for the respondents a stipulation as to what would be shown by further evidence, documentary and otherwise, was prepared and signed by the counsel for the respondents and by counsel for the Office. This stipulation is entered of record in the case.

The testimony given orally, together with all proceedings relating thereto, was regularly taken down stenographically and, together with the affidavits introduced as above stated, the stipulation above referred to, and the arguments of counsel, form a volume of nearly eight hundred pages.

A full and carefully prepared brief was submitted by Messrs. Stauffer and Winter in support of the order to show cause. No brief was filed on behalf of the respondents, and the report of the arguments of Messrs. Wilson and Ford is not as full as might be desired. Opportunity was given them to file such brief or such notes of their arguments as they wished, but they have not seen fit to furnish them.

On August 14 the case was closed so far as the introduction of evidence was concerned, and August 30 was set for final argument. Notwithstanding the fact that the case had been closed, the respondents, through their counsel, after August 19, offered the affidavit of Randall, and it was accepted as part of the record. On August 30 and on the three following days you listened with me to a full and exhaustive discussion of the evidence and of the law bearing on the case. The arguments of Messrs. Wilson and Ford, counsel for the respondents, consuming two full days of this time, the other two days being taken up with arguments in support of the order to show cause by Messrs. Stauffer and Winter for the office, Messrs. Marble, Doolittle, and Fisher for the Bar Association, and Mr. Small for the parties represented by him.

The taking of testimony consumed more time than, in my opinion, it should have done, but it was my purpose throughout to give the respondents every opportunity that they could, with the slightest reason ask for, to introduce any and all evidence which could by any possibility be of value to them.

To a certain extent I was hampered in this investigation by the fact that I had no power to compel the attendance of witnesses or the production of papers. Neither the respondent John Wedderburn, nor any officer of the respondent corporation, nor any employee who admitted any general knowledge of the business was brought forward as a witness by the respondents. Information respecting the respondents, their organization and their relation to the National Recorder was brought but refused.

A letter dated August 3, 1897, was sent by you to the respondents, through their counsel Messrs. Wilson and Ford, asking that answers duly verified be furnished to the following interrogatories:

- First. Who are the members of the firm or corporation John Wedderburn & Co.?
- Second. Who are the officers of said firm and what office does each officer hold?
- Third. How is each of said officers chosen?
- Fourth. How is each of said officers compensated for his services?
- Fifth. How and by whom is the stock of said company distributed and held?
- Sixth. How and by whom was the National Recorder Publishing Company organized?
- Seventh. Who are the members of the firm, company, or corporation the National Recorder Publishing Company?
- Eighth. Who are the officers of said company and what office does each officer hold?
- Ninth. How is each of said officers chosen?
- Tenth. How is each of said officers compensated for his services?
- Eleventh. How and by whom is the stock of said company distributed and held?
- Twelfth. What connection, if any, exists between the firm or corporation John Wedderburn & Co., and the firm or corporation National Recorder Publishing Company?
- Thirteenth. How are business or professional advertisements of John Wedderburn & Co. placed?
- Fourteenth. In what papers have such advertisements been inserted?
- Fifteenth. How are such advertisements paid for?
- Sixteenth. How are the advertisements of inventions and patents for sale placed?
- Seventeenth. In what papers have such advertisements been inserted?
- Eighteenth. How are such advertisements paid for?

Also please furnish me with—

- (A.) A copy of the by-laws of the firm or corporation John Wedderburn & Co.
- (B.) A copy of the charter or articles of incorporation, if any, of the National Recorder Publishing Company.
- (C.) A copy of the by-laws of the National Recorder Publishing Company.

These interrogatories do not call for any information that could not properly be furnished by the respondents. They afford ample opportunity to the respondents to explain the connection between them and the National Recorder Publishing Company, which is indicated by the evidence in this case. The facts that W. L. Crounse, one of the incorporators of the corporation John Wedderburn & Co., is the editor of the Recorder; that the pages of the paper in every issue which has been put in evidence (see Exhibit 125) are largely taken up with advertisements of the respondents and advertisements secured through them; that nearly every issue contains a large number of "write-ups" of recipients of respondents' silver medals, and that the respondents furnished the paper with the names and addresses of these silver-medal recipients, and advised the acceptance of the "write-up" proposition as well as advised their clients to advertise in that paper, all point to a connection between the respondents and this company, which it was proper should be inquired into in this investigation.

To this letter no reply has been received. In fact, since the close of the testimony in this case it was stated by counsel for the respondents that no reply would be made.

The attempt of Mr. Wilson, of counsel for the respondents, to examine Mr. Snow, who was present in the room as a spectator and was not introduced as a witness, I did not permit (p. 358). In no other matter was the counsel for the respondents restricted.

While it is true, in proceedings under a rule to show cause why an attorney should not be disbarred, it is not necessary that the rules of evidence applicable in criminal proceedings be strictly observed, such proceeding being held by the Supreme Court to be in its nature civil (Ex parte Wall, 107 U. S., 265),

(Continued on Page 134.)

NEW INVENTIONS.

Washboard.

There is no doubt that that familiar adjunct to the department of the household the washboard, plays an important part in the matter of cleanliness. And a good washboard is something that will always be gladly welcomed by the manipulator of soiled linen. Such a one seems to be the recently patented invention of Marion S. Caldwell, of Lansing, Mich.

In this the board is of the usual shape, but having back portions with transverse ribs therein and spiral rubbing-strips, of material extending across the back, fixedly secured between the ribs and held from movement. The upper faces of the strips are arranged on a plane above the ribs and are formed of a series of separated curved portions.

Non-Refillable Bottle.

John D. Fitz-Patrick, of Philadelphia, Penn., has invented and patented a non-refillable bottle, which has in its make-up some good qualities. In this bottle the neck portion, adapted to receive a cork, has an upward projection; a shoulder on the interior, having an upwardly inclined wall; a second shoulder in the upper portion of the neck on which is seated a head, to which is attached spring arms extending downward to the lower shoulder on which rests the cork. The latter is conveniently operated for allowing the outflow of liquid, and is a good safeguard against refilling.

Swinging Lounge.

Those who like to take their ease in hammocks or other swinging arrangements upon which one can sit or lie without being rigidly stationary, will find in the patented invention of Adolph Hoffman, of Columbus, Ohio, something for their pleasurable consideration. The invention concerns a swinging lounge consisting principally of a hammock supported by a frame having spring arms attached to its ends and curving upwardly and inwardly. The couch or lounge, swinging between the spring arms, is suspended from their curving ends by connecting rods and bolts, allowing easy oscillating motion of the lounge, while the spring quality of its supports give additional comfort to the swinger.

Wheel Tire.

New tire for bicycle and other wheels are continually coming forward with their bid for recognition. Among these useful adjuncts to travel are many good ones. In the latter class is that recently patented by Frederick Hodgman of Yonkers, N. Y. This tire is of solid rubber, having a core inclosed within and covered by the body of the material. The ends of the core are reduced in width and are overlapped, having on their abutting faces inclined interlocking teeth, which permit the ends to slide past each other as the tire is compressed and to engage with each other to prevent expansion of the tire.

Elastic-Tread Horseshoe.

William R. Howe, of Dayton, Ohio, has been given a patent for an elastic-tread horseshoe, in which the qualities of simplicity and convenience seem to be combined. The shoe has a metal body containing a groove on its under side, the walls of which converge towards the outer edge of the groove. The latter has an elastic packing projecting slightly from it, which is easily expansible within the inclosure; a wire passes through the packing, being secured to the shoe, thus completing a neat and simple arrangement, which should recommend this equine footwear to the owners of horses.

Pneumatic Attachment for Trousers.

Now since the use of compressed air has gotten such a good start in the field of usefulness, there is no telling the limits of its employment. One of the latest uses to which it is intended to be put is as a wearable seat for pantaloons. This newly patented idea comes from Moses R. Isaacs, of Philadelphia, Pa. These air trousers, will, when ready for use, have in their lower middle portion an air cushion and a suitable tube connection extending up the back portion, whereby the owner of such pants can at will inflate them for his comfort and convenience. When he desires to mount a horse, bicycle, merry-go-round, or anything with jolt in it, he simply pulls from his pocket a handy pump and churns air

until the portable cushion is in a condition to be sat on. Surely there is ease in this; and its possibilities are many. What a boon such pair of trousers would have been to the old time schoolboy.

Dough-Raising Cabinet and Drier.

David M. Merryman, of Bloomington, Ohio, has had a patent issued him for a dough-raising cabinet and drier, in which are some very good features. The apparatus comprises in greater part a cabinet with a heating portion, in which is a lamp, and an upper chamber containing a swinging rack, the latter, when not in use to be lifted to the top of the chamber and held there by a spring catch. The cabinet is well fitted for dough-raising or drying, for by adjusting the lamp the heat thereby furnished can be exactly regulated.

New Method of Reefing Sails.

It is said by some who possess nautical lore that a ship will sail faster with holes in its sails than with a "solid" spread of canvass. If this is true, the lately patented invention of William Pope, of Philadelphia, Pa., has a double value. This invention—for a reefing device—consists mainly of caps of textile material arranged to fit over holes cut in the sails. Around these holes and around the edges of the caps are a series of eyelet holes formed to register with each other and to be secured by cords. So when too much canvass is being carried it is only necessary to remove the caps and let the wind blow through the sails. This obviates the necessity for packing the sails on the booms, while it preserves the normal contour of the canvass at its fullest spread.

Gas Turbine.

A useful invention has been made, and recently patented by James G. Sanderson, of Scranton, Pa., who has produced a gas turbine wheel which may, in the not distant future, make the water turbine take a back seat on the stage of usefulness. The wheel is contained in a suitable casing in which are exploding chambers for the gas and air mixture, and suitably located means of electrical current-supply, which is carried within the casing and made to emit the spark for exploding the gas and air mixture.

In a wheel of this nature there should be a more direct application of force than can be gotten from the ordinary gas engine.

Wheel for Bicycles.

David R. C. Devine, of Philadelphia, Pa., is the inventor of a new bicycle wheel, for which a patent has been granted. This invention is for a wheel with an inner felly, carrying the spokes, and an outer or ground tire, which is connected with the rim of the inner by curved springs held by blocks on the spoke-felly, and having their ends in contact with the inner side of the outer wheel. By this method resilience is gotten without the employment of the pneumatic tire. If desired the tire can be made of solid rubber, which, together with the springs should furnish all the elasticity required.

Belt for Bicycles.

Luther H. Wattles, of Providence, R. I., is the inventor and patentee of a belt for bicycles, which may find much favor with lovers of the wheel. The invention consists principally of a wheel having a tapering wedge-shaped groove, and a belt having frictional connection with the wheel in the groove and carrying on its narrower portion lugs converging on their front and rear faces, being of the same length and breadth so as to allow wedging into the groove of the wheel. With a friction belt smooth and noiseless running should be obtained and the possibility of breaking much reduced.

Ink-Well and Pen-Holder.

A patent has been issued to William B. North of Sikeston, Mo., for a unique writing apparatus—a rival of the fountain pen. In this new invention there is an inkwell, having at its lower outer post a rubber tube to one end of which is attached a pen adjusted to receive and distribute ink. When in use, the writer has only to take up his hose arrangement and "fire away"—the tube does the remainder.

Rudder Support.

A patent for a rudder and support for same has been granted Henry Brusstar, of Baltimore, Md. This invention concerns rudders for barges to the keel of which the inventor designs to fasten a bracket having a bearing surface apertured in the

portion extending beyond the keel. The rudder passes into the aperture, rests upon the bearing surface and is secured from displacement from the keeper by a pin and washer. The rudder of a vessel to most people seems a simple affair, but it is one of the very important adjuncts to a ship's make up—so important that when it gets out of order "everything is at sea," and at the mercy of the sea. This invention no doubt will find a useful field.

Puncture-Healing in Pneumatic Tires.

Sola B. Dunn, of Chicago, Ill., is the inventor and patentee of a means for healing punctures in pneumatic tires. In this there is a hermetically sealed cell located in the bicycle tire and on the tread side completely filled with a non-solid substance kept from the air, and another non-solid substance within the tire, close to but not in contact with the first substance. When the pneumatic tire is punctured these two substances are brought together and form a clot, which stops the outflow of air. With the use of this self-healing tire the bicyclist can keep to his wheeling, over all sorts of puncturing material, without stopping to repair damages; for he carries the magic medicine for the wounds of his steed.

Baby Carriage.

Those who study out inventions for the benefit of the little ones have a very large class of possible patrons; and if the inventive idea in this connection is a good one, profit is very apt to follow therefrom.

For the use of babies, Lillian G. Loge, of Minneapolis, Minn., has invented a carriage, which possesses attractive and useful features. This vehicle, for which a patent has been granted, while having the usual wheels and body of an ordinary baby carriage, has in addition a folding frame adapted to extend over the body of the carriage proper, and consists of a top side and rear end wall and front door, the latter arranged to slide up beneath the top. This frame is secured to the carriage; and when in position baby can ride, as if sitting in a little coupe with curtains to keep out the too-strong sunlight and a roof to keep out the rain.

Piano Stool.

Joseph D. Clay, of Harrisburg, Pa., has had a patent recently issued him for a piano stool, which contains that which will be welcomed by those who perform on the piano. This is a device for fastening the stool against revolving when the sitter is not in need of circular motion. The stool is of the spiral screw kind, but has a tubular support with a clamp-casing secured to its upper end. There are provided clamping levers with outwardly projecting handles easily manipulated, so that when the desired position of the sitter is obtained, it is only necessary to grasp the handles of the securing apparatus and fix it stationary.

Wagon-Jack.

Charles H. Brenton, of Coal Bluff, Ind., has been granted a patent for a good wagon-jack, which promises the qualities of a convenient lifter for wagons, carts, etc.

This jack consists principally of a base, or ground-resting piece, double guiding uprights between which slides a lifting, or catch block, a lever and a chain connecting the former with the lifting block. This makes a strong lifter, one of the good points of which is its locking device, that holds the block immovably in position when the required point of raising is obtained.

Flour Sifter.

Considering the amount of dust distributed over a person when sifting flour, and the waste of the producer of the "staff of life" consequent, it is strange that a good sifter for promoting this and to facilitate work, has not long before this come into general use. A remedy for the above disadvantages seems probable in the recently patented invention of Charles Nuhning of Cincinnati, Ohio. This invention is for a semispherical sifter contained in a circular upright casing. In the sifter—which is reversible—there is a rotary beater for acting upon the flour, and suitable crank arrangement for operating the same.

Miter-Board.

It is probable that carpenters will be interested in the invention of Peter Denere, of Chicago, Ill., who has been given a patent for a miter board or block, in which are some features that make this an improvement upon those now in use, while re-

taining the general shape of the latter. This new miter maker has an arm pivotably secured to a base strip near each of its ends; an adjusting socket about the middle of the base strip, having a series of recesses; a guide stand and provided with a projection to engage the recesses and a slot in its lower portion for the operation of the saw. The guide standard is curved over and downward so that its lower end, which can be moved to form any miter angle sets to the side of the saw. When the desired angle is obtained the curved arm can be secured by a set-screw.

Railroad Tie and Fastening.

William R. McDowell, of Philadelphia, Pa., is the inventor and patentee of a combination railroad tie and fastening, which seems a strong, durable and easily managed device. In this, the tie (supposedly of metal) has a transversely extending recess on each side of the rail bearing surface for holding a tongue. The latter is the under portion of a securing plate which fits over the lower flat flange of the rail, holding it securely without the aid of spikes. These securing plates can be put in or taken out with little trouble; and while making a perfect rail and tie fastening, they are adapted to facilitate work in railroad construction and repairing.

Hunting Decoy.

John Silvers, Jr., of Ames, Neb., is the inventor and patentee of a "cow-shaped" hunting decoy—a hollow frame work in which hunters conceal themselves while approaching wild fowl, etc. The frame of this imitation bovine is collapsible, and is arranged so that two men can stand upright within it and walk with their legs incased in those of the decoy animal. In the neck portion of the latter is a movable door, or porthole through which the guns are projected when the "cow" has gotten within gun shot range of the game. This should be a good thing, not only for deceiving game, but also for protection against inclement weather. With it men can "browse" around a duck pond, meander in the woods, and when tired, camp in their cow.

Elastic Horseshoe.

A horseshoe made entirely of rubber is the lately patented invention of Mathew W. Lowes of Marine City, Mich. The shoe is simple in construction, and without parts that might get out of order. It has a frog, or triangular cross-piece, at the rear end connecting the sides, and angularly disposed straight front edges forming an apex. Holes for nails are employed as in metal horseshoes; but this equine footwear should, notwithstanding the use of nails for its fastening, be of much comfort to a horse.

The Roentgen Ray.

Prof. M. B. Snider, of the Franklin Institute, in a recent address before that body is quoted as saying: "There is nothing in the Roentgen ray differing from what we call an electromagnetic ray. In time it will be possible to reflect it and do anything with it that we can with light. Possibly what we term light in our atmosphere is nothing more than a transformation of energy out of the cathode rays shot off by the sun itself. Possibly light does not come from the sun at all." He believes that the vibrations known as light are generated in the atmosphere. Were we to go up beyond the atmosphere, we would not see the sun at all.

Steel Structures and Fire.

A practical demonstration of the ability of steel structures to withstand fire is afforded by the recent destructive fire in the business centre of Pittsburg. Although every floor of the Horne building was swept clean by the flames, the steel structure stands as if just erected and ready for the interior work. The Z-bar columns on the different floors are in as good condition as if just put up. At the top was an immense steel tank of water. This fell and broke its way through to the cellar. Otherwise the frame is intact and it is now thought that much of the steel work can be re-used. There was no warping or bending.

A new bridge over the Danube at Czernavoda is now the longest in the world, its length being 13,325 feet to 10,725 feet of the Tay bridge. The widest span is 620 feet wide, and there are two others of 455 feet.

Fence posts are now being manufactured of cast iron, with a screw in the end, so that after they are driven into the ground a short distance they bore their way into the earth as they are turned round by a detachable lever, and can be easily removed by a reverse motion.

Coaling Vessels at Sea.

The coal supply of a big warship is of greater importance than ammunition. What a helpless, useless thing a modern fighting machine would be floating in open sea without means of locomotion save the limited canvas that is carried. The question of coal supply for men-of-war is one that has received the serious attention of naval authorities. It has been tersely stated that the radius of action of the steam-driven ship is determined by her capacity for carrying fuel and her distance from an available coaling station. And it must be remembered that coaling stations belonging to the United States are few and far between.

In the blockading of an enemy's port, probably the most striking uselessness of the modern cruiser—without fuel—would be demonstrated. A successful device for coaling at sea would result in the effectiveness of all vessels engaged in a blockade while the necessity of each warship going to some distant coaling station when running short of fuel would result in diminishing the power of a blockading fleet to a point ridiculously weak when compared with the fighting strength of the fleet when the bunkers are well filled.

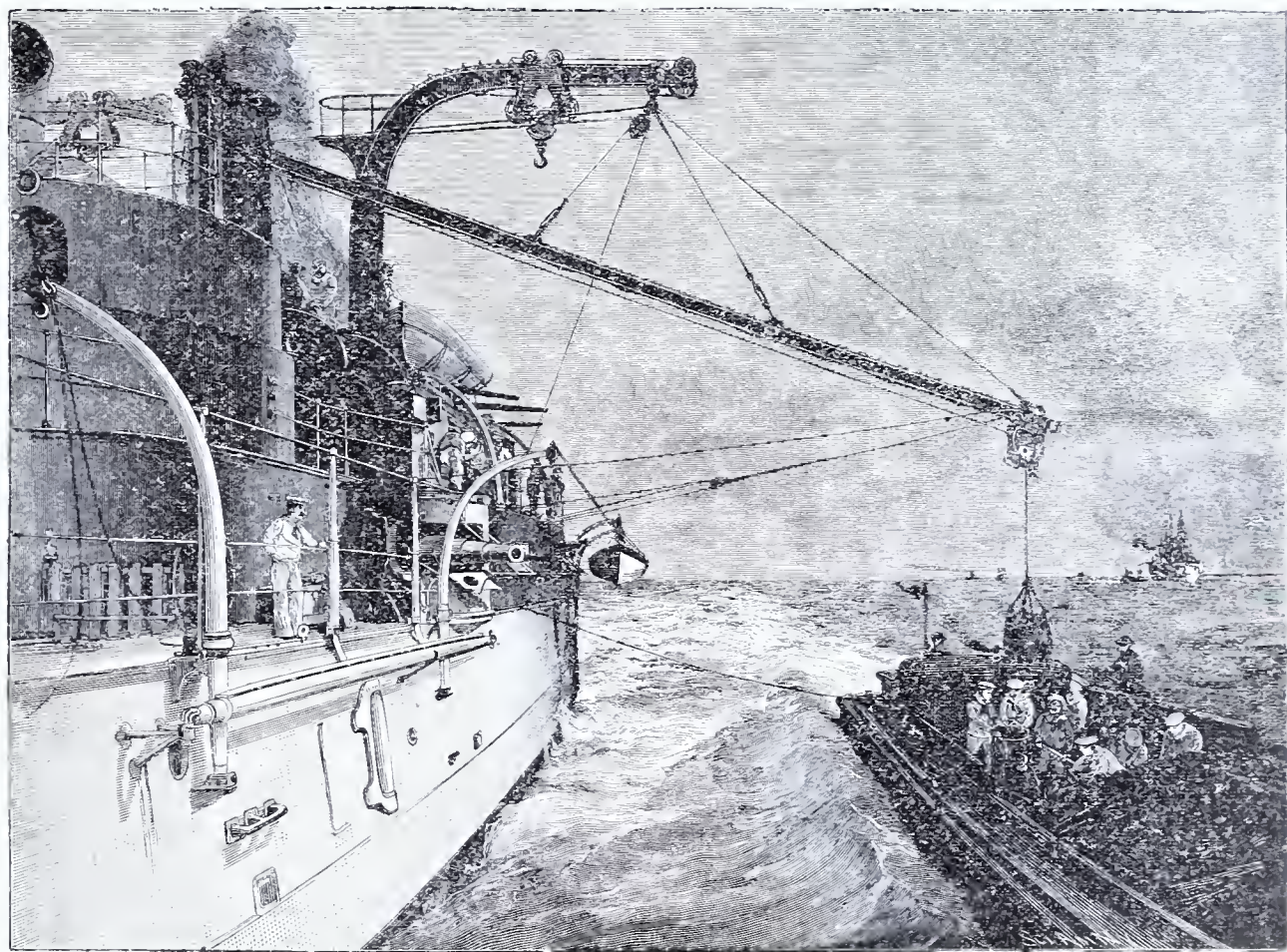
The illustration herewith represents the battle-

ship, and that the operation may be carried out with equal success under such conditions.

Gas Escape Detector.

A new French gas escape indicator resembles a small aneroid barometer. The bottom of the case forms a disc of elastic material covered with a porous substance, and the gas penetrating into the interior, acts upon the sensitive disc, causing a deformation, which moves a needle on a dial plate to indicate the atmospheric variations. The dial scale being so constructed that the figures correspond with the gas-percentage. In a mixture of 100 parts of gas and 900 of air the needle will point to 10. Gas leaks too minute to be detected by smell are thus indicated and the point of leakage may also be discovered, as the nearer the instrument approaches the point of escape the more powerfully is the needle affected.

A new and novel variation in the "slot" machine line is one invented by J. P. Morris, a Union Pacific brakeman. To a weary tourist of the second-class a pillow would in the slot machine each dime be a luxury. The invention in question is a dime actuating a mechanism releasing a pillow. Let us not underestimate the novelty and utility of this invention.



THE TEMPERLY SYSTEM OF COALING VESSELS AT SEA.

ship Massachusetts taking coal from what is known as the Temperly Transporter, made exclusively by the Lidgerwood Mfg Co., 96 Liberty street, New York city, and which device has already been adopted in the navies of Germany, France, Austria and Italy. The device consists of a traveler running on a suspended beam, which reaches out over the barge and is carried from one of the boat cranes of the battleship. This beam, which is 60 feet in length, and weighs about 3,000 pounds, is suspended from a strap, attached to the crane by four steel guys, and it is prevented from swinging fore and aft by means of other guys which lead inboard and are made fast to the deck of the vessel. A novel form of self-locking carriage is employed, which travels upon the lower flanges of the beam, and is capable of traversing its entire length. The beam is pitched at an angle sufficient to cause the carriage to run out by gravity, and a single hoisting rope coiled about the barrel of the steam winch serves at once to operate the carriage and hoist the load. The long reach of the beam permits coal to be taken from a vessel of any description, which may stand off from the battleship a distance of from twenty to twenty-five feet, and the operation may be carried out in any sea in which it would be safe for two boats to lie at anchor at that distance apart. As the transporter is supported entirely from the battleship, no part of it can be injured by the rolling from the two vessels.

It will be evident that the coaling ship may be towed at a moderate speed parallel with the war-

ship. The Hawkins steel process, which at one time received much attention at Birmingham, Ala., is now being exploited at Chicago. They expect to make a fine grade of steel from cheap pig iron and scrap at much less than the present price of billets. The poor results obtained at Birmingham certainly do not encourage much hope in that direction.

A large Dussand microphonograph, now being constructed for the Paris exhibition of 1900, is expected to make the voice heard by 10,000 people. This form of apparatus is especially designed for the deaf, and for the study of the feeble sounds given out by the organs of the body in health and disease. It magnifies the voice much as a lens magnifies objects to the eye.

Professor William B. Dwight of Vassar College has invented a machine that will slice rock so thin it can be used for a window transparency. This feat is accomplished by means of a series of tin disks with edges charged with diamond dust. The machine will cut fossils or rock of any description so thin that one may see through it as easily as through the glass in a window. To such a degree of nicety is the machine regulated that it will cut the most brittle rocks to the thickness of one-fiftieth of an inch. The object of the inventor was to contrive a machine which should be of assistance to the paleontologist in enabling him to distinguish the minor points of his objects of investigation, which, under former conditions was impossible.

(Continued from page 131.)

no evidence was put upon the record in this case which would not be admissible in any court and in any proceeding. In this opinion I have based my conclusions mainly upon the testimony of witnesses introduced by and in behalf of the respondents, on exhibits put in evidence by them upon the stipulation signed by their counsel. No evidence introduced on the part of the Office has been given weight except that which respondents have had ample opportunity to explain or deny. No evidence was introduced on behalf of the Office after the respondents' case was closed, though in conformity with the usual procedure the office could have introduced evidence in rebuttal. And though it is not necessary in a proceeding of this nature that the offenses be proved beyond a reasonable doubt, every fact stated in this opinion is so proved. The investigation was conducted with entire fairness and the respondents were afforded ample opportunity to explain the transactions on which the charges were based and to vindicate their conduct. (See *Randall v. Birmingham*, 7 Wall., 523.)

It is admitted in the answer of respondents that John Wedderburn & Co., is a corporation incorporated under the laws of the State of Virginia, and its business is to gather in for prosecution claims against the United States, including patents; and the said corporation has been so engaged since the date of its organization, March, 1895. That John Wedderburn is the president of this corporation and that cases are filed and prosecuted in his name as attorney is also admitted in the answer.

The answer is signed by John Wedderburn as president of the corporation, and Thomas B. Crittenden certified that he was then the secretary of this corporation, and that John Wedderburn was then the president.

The purpose of the corporation is stated in the answer to be to gather in for prosecution claims against the United States, including patents.

It appears from the certified copy of the charter of John Wedderburn & Co., introduced as Exhibit 131, that application for incorporation was made on March 6, 1895, by John Wedderburn, William L. Ford, Arthur L. Hughes, William L. Crounse, and Thomas B. Crittenden, and that the charter was granted March 25, 1895, the officers of the corporation for the first year being stated to be John Wedderburn, William L. Ford, Arthur L. Hughes, William L. Crounse, and Thomas B. Crittenden.

The purpose of the corporation is thus stated in paragraph 2 of the charter:

The purpose for which the company is to be formed is the prosecution of claims against the United States, and of patents and other business before the courts, the Departments, and Congress.

In paragraph 6 the chief business is thus stated:

The chief business to be transacted by the said company is the prosecution of claims against the United States, and of patents and other business before the courts, the Departments, and Congress.

It clearly appears from the exhibits that while applications have been usually filed and prosecuted before the office by John Wedderburn as attorney, all correspondence with clients, both before the filing of the application and during its prosecution, has been carried on by John Wedderburn & Co. In certain cases, however, applications have been filed in the name of John Wedderburn & Co., as attorneys.

The closeness of the relation between John Wedderburn & Co., and John Wedderburn shown by the evidence is such that even if no application had been filed in the name of John Wedderburn & Co., as attorneys, that corporation must be considered for this proceeding subject to your jurisdiction. So far as the prosecution of applications before this Office is concerned John Wedderburn is merely the agent of the corporation of which he is president, and that corporation may be and should be held responsible for his acts.

Further, the advertisement, "Wanted an Idea," hereinafter referred to as extensively circulated by this corporation, requests inventors to write to "John Wedderburn & Co., patent attorneys;" the pamphlet "One Thousand Inventions Wanted," hereinafter referred to, bears in conspicuous letters "John Wedderburn & Co., patent attorneys," and the other pamphlets and papers sent out by this corporation, whether stating or not that John Wedderburn & Co., are patent attorneys, clearly imply that they intend to be so considered. In the letter heads used in all correspondence with inventors and others by this corporation John Wedderburn & Co., are announced to be "Solicitors of American and Foreign Patents."

Throughout this correspondence with applicants John Wedderburn & Co., represent themselves as conducting the prosecution of their applications before the Patent Office and did no doubt so do through their employes, notwithstanding that the formal power of attorney was to John Wedderburn.

Having by these advertisements, pamphlets and letter heads, as well as by the whole tenor of their correspondence, put themselves before the public as patent attorneys, these respondents, John Wedderburn & Co., can not be heard to deny that they are,

for the purpose of this investigation, in fact, patent attorneys or agents practicing before this Office and subject to the jurisdiction of the Commissioner simply because they are in fact a corporation not legally competent to practice law and because the prosecution of cases was done in the name of John Wedderburn.

The methods employed by this corporation in gathering in for prosecution applications for patent and other business relating to patents, the methods employed by the corporation in making searches on inventions submitted to it, the correspondence carried on with clients, the methods employed by it for securing fees from clients for foreign patents, for advertising inventions for sale, for appealing rejected applications, in general, the methods employed by it in hunting clients for their money, may properly be inquired into by you not only as bearing on the fitness of John Wedderburn to continue to practice before this office, but as bearing on the fitness of this corporation to practice before this office either directly or through its agent. It is impossible in this inquiry to separate the president of the corporation from the corporation of which he is president. The two must stand or fall together.

From an article in the nature of an advertisement of these respondents, published in the Washington Post of March 7, 1897, a copy of which was introduced as an exhibit in this case, it appears that John Wedderburn prior to the organization of the corporation John Wedderburn & Co., was for four years manager of the bureau of claims and had made a comprehensive study of patent law. Prior to the organization of the corporation John Wedderburn & Co., as appears from exhibits in this case, John Wedderburn was manager of the Press Claims Company and appeared as attorney in application papers filed at this Office. The earliest date at which John Wedderburn appears as attorney in any case introduced as an exhibit herein is the case of *Kramer & Mosher*, filed October 10, 1893. Since that date his name has constantly appeared as attorney upon papers filed in this Office. He can not be presumed to be ignorant of the requirements of attorneys or agents practicing before this Office or ignorant of what constitutes fair and honest dealing towards clients. As president and representative before this Office of the corporation he must be held to have been fully informed of the business of the corporation and to have been cognizant of and responsible for whatever has been done by the corporation or its employes. The corporation, with a man who has so long appeared as attorney before this Office at its head, can not be held to be ignorant of what was required of it in honesty and decency in its relations with its clients.

The method employed by this corporation for opening correspondence with those who had made or might be induced to make inventions consisted in advertising extensively in the newspapers of Washington and elsewhere substantially as follows:

WANTED.—An idea. Who can think of some simple thing to patent? Protect your ideas; they may bring you wealth. Write John Wedderburn & Co., Patent attorneys, Washington, D. C., and get their \$1,800 prize offer and list of inventions.

Mr. Ford, of counsel for the respondents, in his argument asserted with more ingenuity than candor, that there is not anything said in this advertisement about an \$1,800 prize, taking the ground that an \$1,800 prize offer would not be understood to be an offer of an \$1,800 prize. With this view, it is hardly necessary to say that I cannot agree.

This advertisement was false and misleading in its reference to an \$1,800 prize offer. The evidence clearly shows that there was no \$1,800 prize offered by Wedderburn & Co., and that they made no prize offer which could fairly and honestly be considered an \$1,800 prize offer. The prize offered by them was a prize of \$150 only. Their explanation of the \$1,800 prize offer is that, as \$150 was offered each month, the aggregate amount for twelve months would be \$1,800.

By this adroitly worded but deceptive advertisement many persons were induced to send to this corporation for the \$1,800 prize offer and list of inventions. In reply to such requests, Wedderburn & Co. were accustomed to send certain printed matter, comprising a pamphlet entitled "How to get a patent," written by Mr. Ford, one of the incorporators and at one time an officer of this corporation (as appears from the charter), and one of the counsel for the respondents in this proceeding; another pamphlet entitled "Have you an idea? One thousand inventions wanted;" a copy of the slip entitled "A new departure, by John Wedderburn & Co. A special search service," and the paper entitled "Prizes on patents." "\$1,800 given away, etc." With these was sent a letter substantially in the form given on page 1 of the stipulation signed by counsel, stating terms for preparing, filing, and prosecuting an application for patent and stating that after a patent has been obtained "we can place the same before the proper capitalists, etc."

The letter head on which this letter is written is as follows:

Law Offices of
JOHN WEDDERBURN & CO.,
Solicitors of American and Foreign Patents,
Trade-Marks and Copyrights,
618 F Street, N. W.
[Cable address, "Wedpatent," Washington, D. C.]
WASHINGTON, D. C.

Correspondents:

Great Britain,
France,
Spain,
Denmark,
Belgium,
Austria,
Germany,
Italy,
Russia,
Australia.

Patents Sold on
commission and
placed on royalty.
Taxes paid and
patents worked in
foreign countries.
Royalty con-
tracts. Partner-
ship agreements
and assignments
drawn and recor-
ded.

P. O. Box 385.

It will be noted that it is stated in this letter head as part of the business of the respondents—

Patents Sold on Commission and Placed on Royalty.

On this letter head was stamped in red ink, as admitted in the stipulation signed by counsel, a notice, of which the following is an example:

NOTICE!!

Total number of patents procured last week, 391; 124 were sold.

That this was intended to be understood and would be understood, by anyone reading it in connection with the letter head and the sale offer contained in the letter, as a statement of the number of patents procured by the respondents and the number sold by them is obvious, particularly in view of the fact that subsequent to January 15, 1897, as stated in the stipulation signed by counsel, the notice with reference to patents was made to read—

NOTICE.

Total number of patents allowed by United States Patent Office last week, 396; 322 were assigned,

and this was stamped, not on the letter with its letter head above referred to, and containing the sale offer, but on the back of the "New Departure" circular.

This change in the wording of the notice, the omission of the word "procured," with its necessary implication of agency, and the change in placing the notice, clearly indicate that the notice in its original form and location was recognized as not a proper notice, even by the respondent.

The paper entitled "Prizes on Patents, &c.," states the condition of the prize competition and states the amount of the prizes and the manner of awarding them.

In this paper it is stated that the prizes will be awarded by a jury consisting of one reputable patent attorney and two of the leading business men of Washington. It is stated in this paper that in order to enter the competition for the prize, every competitor must apply for a patent for his invention through the respondents, or if he has already secured a patent through another agency, he must submit it to the respondents for examination as to its validity. If he has not secured his patent, he must first have made a preliminary search at a cost of \$5.

In other words, the competition is open only to those who have paid money to the respondents. This is perhaps not unfair, though it makes clear the fact that there is nothing either philanthropic or generous in such an offer, and that instead of being intended for the broad purpose of inducing "people to keep track of their bright ideas and see what is in them," it is intended solely to boom the business of the respondents.

But whatever may be said of the purpose of this prize competition, it was not fairly conducted. The jury of awards did not include a patent attorney, either reputable or otherwise. It included a United States Senator, an ex-Senator, a Member of Congress, and certain business men of more or less prominence. The awards were not made in all cases by the full jury or board of awards. On at least one occasion, (page 772 et seq.) one member only of the board of awards was present. Julihn testified that he did not know the face of Mr. Eckloff of this board of awards (page 775.) The inventions submitted in competition for these prizes were not all of them brought before this board, whether one member was present or five. Many of them, in fact the greater proportion of them, were thrown out by the searchers, many of whom are shown to have been incompetent, and only those selected by these searchers as most promising were submitted to the board. This is clearly shown by the testimony of Bond, Julihn, and Gillis. The respondents in their cross-examination of Gillis put in evidence the following order (page 197):

Search Department. All search makers must select one invention each month to be submitted for the monthly prize of \$150. The features to be considered are simplicity, commercial value, usefulness, ingenuity and patentability. Any cases upon which a fee has been paid during said month can be entered in competition. Dated Oct. 25, 1897.

To permit an invention submitted in accordance with the conditions of the paper "Prizes on Patents" in competition for the prize of \$150, to be awarded by a jury or board, such as described in that paper, to be thrown out by an inexperienced and incompetent searcher because he does not think it worthy of the prize is not fair or just to the competitor. It is necessary to a fair competition that the jury or board of awards should be impartial, disinterested men, competent to decide upon the merit of the inventions, and it is also necessary that this jury or board should see and examine the inventions submitted. Otherwise the competition is a farce and a fraud.

Whether the jury or board which awarded respondents' \$150 prize were competent or not, need not be considered. The fact that the inventions submitted were judged not by them, but by inexperienced and incompetent subordinates of the givers of the prize, stamps the competition as an utter sham and fraud.

It is held by respondents that this paper clears up any misunderstanding that might have existed by reason of the advertisement above referred to; that after this paper has been received there is nothing that requires explanation (p. 496). It was further stated by counsel for the respondents that the advertisement was not misleading, for the reason that it called for no expenditure on the part of anyone, and before any money was called for the paper fully explaining the prize offer was sent out.

With this explanation I cannot agree. The advertisement above referred to was, in my opinion, false and misleading and known to be so by the respondents. It was intended to catch the attention and secure the response of persons to whom a prize offer of \$150 would not have appealed strongly. It was misrepresentation for a purpose, that purpose being to secure the name and address of would-be patentees that respondents might begin upon them a systematic course of misrepresentation which they employed to entice from clients fees for preparing and prosecuting applications and for various other purposes—in other words, to begin hunting the inventor for his money.

It may be open to question whether this advertisement, untruthful and misleading as it is, is in itself alone sufficient to amount to gross misconduct. It is, however, of importance as being one of the steps in the system employed by the respondents.

The various papers sent by the respondents with their first letter to a correspondent—the "How to Get a Patent," "One Thousand Inventions Wanted," etc.—were calculated and intended to encourage would-be patentees to believe that there was a great demand for the most simple inventions; that in many fields of invention there were no satisfactory devices; that the public was eagerly awaiting inventions in lines in which, as a matter of fact, there are hundreds of devices already patented. The "One Thousand Inventions Wanted," as is evident to anyone experienced in the arts, is little more than a list of old inventions. Certainly very many of the inventions therein stated to be "wanted" are inventions for which many patents have been granted.

Throughout their advertisements and the pamphlets add papers sent out by them, these respondents endeavor to impress upon the public the value of simple inventions. They state in "How to Get a Patent" that small things are the most valuable. In "Prizes on Patents," they state that "it is not the great, complex, and expensive inventions that bring the best returns to their authors, but the little, simple, and cheap ones." In the advertisement "Wanted, an Idea," they ask, "Who can think of some simple things to patent?" In all this there is that half truth that is in its effect worse than a falsehood.

It is true that some small inventions, simple inventions, which have required little thought and little knowledge of the prior art on the part of the inventor, have proved of value. It is equally true, no doubt, that in lotteries some one for a trifling outlay has won a large prize. Yet the effect of lotteries is recognized as demoralizing to a degree. To endeavor to impress upon the public the idea that anyone without experience in the art, without knowledge of what is claimed in the art, without study and thought and experiment can evolve inventions of value is as demoralizing as the idea so strenuously insisted on by lottery agents that anyone who buys a ticket may win the great prize. It is as true in inventions as in everything else that what costs nothing is worth nothing. The valuable inventions are those which are the result of hard work, careful study, and experiment, by those who have familiarized themselves with what others have done and with the real needs in the art. The careful student does not always produce inventions of value, but he is at least not likely to merely reinvent what is already known, what is already before the public, either adopted by the public or tested and thrown aside as worthless.

The tyro, ignorant of what has already been done, ignorant of what is practical, what is needed in the art, having before him such meager and misleading information as that contained in the "One Thou-

sand Inventions Wanted," works in the dark, and it is not surprising that he at most merely reinvents what is old. Out of 33,000 inventions on which searches were made by the respondents in two years over 20,000 were, even by their searchers, incompetent and inexperienced as many of them were, found to be at most reinventions of what was already old.

Further, it is only those simple inventions which are broadly new that are of any considerable value. Patents which are limited to mere improvements on inventions broadly covered by existing patents are in most cases of little value. Inventions which differ only slightly from inventions already patented, particularly in such lines as the following—all of which are given in the lists of "One Thousand Inventions Wanted"—Gate openers (7), self-closing gates (9), rakes (16), wrenches (98), alarm locks for doors (110), bale ties (143), baseball bats (157), flag staffs (524), soldering iron heaters (579), irregular form lathes (637), moth-proof bags (695), pruning implements (812), coin-registering purses (822), key-opening cans (933), pocket stoves (973), and the like, have to compete before the public with the earlier devices of which many have been patented in each of these lines, as well as in nearly all the lines of invention mentioned in that list, and are not likely to prove valuable, as must be well known to these respondents.

From the exhibits in the case, it is apparent that a large proportion of those reached by the respondents' advertisements are country people, many of them, as shown by their letters, possessed of little education and small knowledge of the arts. To induce such people to believe that these old and well-worked fields of invention are new and untried fields in which inventions of value could be readily made by them is grossly deceptive; is demoralizing to the same extent and in the same way as the alluring prospects held out by the lottery agent.

It is admitted that as a result of sending these pamphlets and papers to persons who have been led to write to the respondents by the advertisement above referred to, such persons have sent conceptions or inventions to the respondents, together with sums of money, and the respondents have for these sums of money undertaken and agreed to make in each case a thorough examination of the records of the Patent Office when so requested. (See answer p. 2.)

It has not always been the case that inventors sent on their inventions at once upon receipt of the respondents' first letter with its accompanying pamphlets and papers.

When the supposed inventor failed to reply promptly, the respondents have in many instances, as shown by the evidence and as admitted in the stipulation signed by counsel, sent him an undated circular letter offering to advise him free of charge as to the patentability and salability of any device he might have.

Those who took advantage of this apparently liberal offer (as, for instance, Nagaye, letter of August 3, 1896, p. 460) received in reply a letter containing information which, in so far as it was not positively false and misleading, was such advice as could very well have been given for nothing, for it was worth nothing. Instead of giving substantial advice as to patentability, it merely stated that the invention was of a patentable nature, but stated that to determine its patentability a search at a cost of \$5 would have to be made. The respondents, in sending out the letter promising advice free of charge as to patentability, were well aware that novelty is an essential, the primary essential, of patentability, and no advice as to patentability that would be of any value could be given without determination of the novelty.

This letter, replying to those who took advantage of the offer of advice free of charge as to patentability and salability, contained also a statement which, it is supposed, was intended to have some bearing on the question of salability of the invention. This statement is in the following language:

We are in receipt of your esteemed favor of —, inclosing sketch and description of your —, of which reference has been made to the chief of our sales department, and this is the principal cause of delay in answering. In his expert opinion, a successful device of this nature, if patented immediately and properly handled, would net its owner not less than — on direct sale, or yield a good income for several years if transferred on the royalty plan. Its cheapness and simplicity are strongly desirable elements in its favor, as there would be little or no experimental cost to eat up the profits, and a practically unlimited market will be furnished for such a successful device.

This either is or is not intended to be understood by the client as an estimate of the value of the invention submitted by him to John Wedderburn & Co., for their promised advice as to its salability. If it is not intended to be understood as an opinion as to the value of that invention, an expert opinion of a person who is "chief of our sales department," and necessarily a trusted employee whose competency is vouched for by the respondents, then it is not such advice as is promised by the respondents, is worthless to the client, and is a delusion and a sham, and the offer of advice free of charge is a mere trick to reopen correspondence with the inventor in

the hope of leading him on to send fees to the respondents for search or other purposes.

If this expert opinion of the chief of the sales department is intended to be understood as an opinion of the trusted expert, whose competency is vouched for by respondents, as to the commercial value of the invention submitted by the client, then it becomes necessary to inquire into the actual competency of this so-called expert, the manner in which he determined the value of the invention, the relations of this expert to the respondents, and the propriety of sending such an estimate in advance of any information as to the novelty of the submitted invention.

The evidence discloses the fact that this expert chief of the sales department was Arthur L. Hughes, one of the incorporators of John Wedderburn & Co., and for the first year one of the officers of the corporation. Neither Bond nor Julihn, witnesses for and trusted employees of the respondents, is able to state anything as to the qualification of this expert. A number of cases in which he placed a valuation of from \$2,000 to \$20,000 are in evidence (see stipulation), and in nearly all of these cases there is admittedly nothing patentable, and therefore nothing of value.

Values were placed on inventions by this expert Hughes at sight, sometimes without even sight of the invention or even full description of it—without study of the invention, without inquiry as to its novelty, without consultation of books—such valuation being a mere off-hand opinion, or statement rather than an opinion, on a matter upon which neither he nor any other person could have passed intelligent judgment without careful study and full knowledge of all material facts.

It is testified and not denied that Hughes never failed to place a substantial value upon every device submitted to him. Even a perpetual-motion device was estimated by him to be worth a million "if it would work"—an opinion, which in the judgment of Mr. Ford, of counsel for the respondents, was a proper opinion. (P. 224.)

There can be no doubt that the respondents employed Hughes for a definite purpose, that purpose being to direct that in every case submitted to him the invention should be reported to the client as of a very considerable value, without the slightest regard to the novelty of the device or its real value. Hughes, being one of the incorporators, and for a time, at least, one of the officers, could be depended on to carry out the schemes of the respondents, however deceptive and fraudulent they might be. He was intrusted with this work, and he did this work, no doubt, in precisely the way it was intended he should.

This scheme of placing a valuation on inventions before their novelty was even looked into is deceptive and fraudulent on its face. It is utterly indefensible. It was intended to mislead and deceive the client, to make him believe his invention to be of great value, and, so believing, to proceed further with it by paying fees, at least the search fee, to the respondents. This report of value was calculated to so influence the mind of the inventor that he would be slow to accept even an unfavorable report as to novelty, and no doubt in part explains the action of the inventors in those cases in which, after anticipating references, which they probably never understood, were shown them, they persisted in making application for patent.

This valuation scheme as carried out by the respondents through Hughes is in and of itself fraudulent and deceptive, and clearly amounts to gross misconduct on their part. As one of the steps in the respondents' adroitly planned and skillfully executed scheme for securing fees from would-be inventors, as one of the steps in hunting the inventor for his money, it is even more glaringly fraudulent.

The sending of a false valuation in a single case known to be or which should be known to be without value where by reason of such valuation the inventor might be induced to part with a sum of money, indicates at least gross negligence. To make a practice of sending out false valuations indicates deliberate purpose.

Even in the Heverly case, page 522, after completely anticipating references had been found and cited in rejection by the Patent Office (Office letter of October 9, 1896), the respondents failed to correct the estimate of value, and even stated that they saw no reason to change their opinion as to its practical value (letter of November 7, 1896). After the receipt of the rejection by the Office, they proceeded with the prosecution of the case, advised the taking out of foreign patents (letters of October 22, 1896, and January 2, 1897,) offered to sell the invention (letter of November 19, 1896,) and sent the usual letter in reference to taking appeal (letter of March 27, 1897.)

If these estimates were given through mistake, the respondents should have been, and doubtless would have been, quick to correct the mistake as soon as it was made known to them, in order that the client might be prevented from further outlay of money.

By these methods the respondents have induced

(Continued on Page 138.)

THE NATIONAL CORRESPONDENCE INSTITUTE

(Continued from page 129.)

pendence. It was originated by the manager himself, and copyrighted, and is used by this Institute as its exclusive property.

The National Correspondence Institute is not a "Civil Service School" or "Civil Service Institute," but an incorporated educational institution, consisting of seven departments, viz.: Bookkeeping and Business Shorthand and Typewriting, Science, Journalism, Drafting, Civil Engineering, and Civil Service examinations.

Instruction by correspondence dates its origin from the plan of "university extension" which originated in England. It is nothing new and requires no special mention. Mr. McKinley was the first to model and adapt this plan to preparing candidates for civil service examinations. This was something novel and original, a stroke of inventive fertility and skill, for which he is entitled to the sole credit. This plan he began to use five years ago and has been improving and perfecting it ever since, and whenever experience and practical tests have shown that a change or an addition would be an improvement, it has been adopted. By this means the preparation of candidates for civil service examinations has kept abreast with the very latest and best educational methods.

The Institute prepares candidates for more than

suing a regular course of study. It requires time, experience, labor, skill, a sufficient force and all backed by means to keep things moving, in order to do it, and the reputation and success of the institute shows that it is possessed of these, and has dealt honestly with the public.

"What are your terms and how do you teach by correspondence?" asked the reporter.

"Our enrollment fee is \$10.00 cash," said the manager, "and there is no other charge whatever until an appointment is secured when 3 per cent of one year's salary, less enrollment fee, is charged. As soon as we receive the fee and an application for enrollment properly filled out and signed (which blank forms we send out) we mail to the applicant a list of the different examinations from which he makes his selection. We also send him at the same time our "Information Blank," which contains a number of questions. From the answers given to these interrogations we can tell if it is advisable for the applicant to attempt to prepare for the examination he wishes to take. Often we find that an examination has been selected for a place which pays less than some other place requiring a less difficult examination. We give the applicant the benefit of this information.

"The first work which we send to our students is our "Trial" examination, consisting of questions on all the subjects. From the answers returned we learn where our student is well informed and where

The time required to complete our course varies with the aptitude and previous educational advantages of each individual and the amount of time devoted to the work each week. The usual time is from four to twelve weeks, an hour or two each day. We never consent to any one's taking an examination until we are satisfied with the preparation, without regard to the time that has been taken. We can give out the work as fast as it can be taken.

Take for example our work for the postal service. The subjects are: Spelling, Penmanship, Copying, Letter-writing, Arithmetic, U. S. Geography, and Reading Addresses. The first five subjects constitute what is now known as the basis examination. Each subject is given a "relative weight" and an average is found for the "basis." Geography and Reading Addresses each has a weight equal to the "basis," or, in other words, each of the last two subjects has a weight equal to the first five combined. Our work on Geography is so thorough that few of our students make less than a perfect grade—our best students always make a perfect grade on this subject. For practice in "Reading Addresses," we have sets of cards similar to those used by the Civil Service Commission, and our method of work on that subject is exactly as used by the Commission. They are written by different persons, and give the greatest variety of handwritings and addresses. A few of these drills make a wonderful



fifty different kinds of civil service examinations and prepares them in the best possible manner. The professors who furnish the instruction are all specialists of distinction in their respective departments and those who teach the technical branches are not only theoretical scholars but have been engaged in practical work, both under government and in private employment.

Did the institute have any imitators?

Mr. McKinley said "yes;" but he had been in business more years than they had months, and hundreds of students whom he had prepared were now in the government service. He referred to five years dealing with business men and bankers of the city, and to all whom he had ever referred as a guaranty of his reliability.

After returning to the manager's office, the reporter was shown a large number of educational and religious journals of national reputation endorsing the high character of the Institute. He was shown also, thousands of letters from students expressing not only their appreciation of the value of the instructions they had received, but also their gratitude for the interest taken in their individual progress, he glanced over quite a number which he pulled from the stacks and the tone and tenor were the same in all.

One important point noted was the individual character of the instruction. It is one thing to prepare and send out instructions to hundreds of students; it is quite another thing to meet the wants of each individual student by answering his letters personally and removing all the special difficulties which arise in his particular case, while pur-

he is deficient and prepare our subsequent instructions accordingly, to meet the necessities of each individual case. Then follow our "Test" examinations. The questions are taken chiefly from lists which have been used by the Commission, are the best sample questions that can be used and cover the entire scope of the examination. This "Test" represents the actual examination to be made before the Commission. The work is marked and graded according to the rules used by the Commission all errors noted and corrected, and returned. These tests are repeated over and over again until the student has become thoroughly accustomed to the methods and requirements of the civil service examiners. They are continued until the student passes a successful examination and receives an appointment or as long as he chooses to take them, without regard to time and without any other compensation than the original fee.

"Heretofore the only way for an applicant to get any information was by taking an examination, but now we can prepare him in advance, giving him the same experience he would derive from a score of examinations. Possibly not one in a thousand gets a position on the first examination, and a very few after taking the second examination. More receive appointments after the third trial, and so on. This proves that their success in getting a grade high enough for appointment came from the experience acquired in taking the examinations and "picking up" as best they could the technical requirements of the Commission. The delay between examinations is one year, and any one will readily see the great saving in time.

improvement, and are really a necessity to one preparing for examination. Our work on the other subjects is also very thorough.

"Again, there is nothing to be had for the Gauger's examination equal to a treatise on the "Application of Physics to Gauging" which was prepared by Prof. Blumen, principal of the department of science, at the request, and for the special and exclusive use of this Institute. It presents in a nut shell the description and use of instruments and all the scientific facts necessary to be known which the student would be puzzled to find out for himself by delving in the great works on general physics. And so I might go on; but this is sufficient."

The reporter then asked Mr. McKinley one last searching question, put in the following form: viz.;

"There are many very highly educated persons—not a few of them having been educators themselves, teachers and professors, who take the civil service examinations. Now what does this class of people think of your Institute and your methods? Does this class enroll as students in your Institute?"

"I am glad you asked me that question," said Mr. McKinley, "it is precisely with this class that our greatest strength lies. We never receive any one for enrollment who has not a fairly good English education, and make no charge for informing an applicant of any fatal deficiency. On the other hand, the more highly educated a person is, the more valuable is our instruction. There are a multitude of minor points from filing the application to the examination which must be observed. Students are very apt to overlook them because of their insignificance and their importance to genuine

scholarship. Thus, to give one example out of many, an irregular margin in writing may decide in favor of one applicant over another who passes an equally good examination in other respects.

It is these little things, (and there are many of them) that the students want to know, and not know, as matter of information only, but to practice. If a student can make from 85 to 90 points, without our assistance, and we can help him to make five or even two or one more, it is clearly a good investment for him, or her to enroll with us; for one point will win the day; and in fact, this is the common sense view they take of it, and the majority of our students belong to the educated class.

Novelties in Office Furniture.

A. Cutler & Son, Buffalo, N. Y., are manufacturing some very unique pieces of office furniture, among which their roll top desks and copying press are worthy of especial remark. On these they have taken out upwards of twelve patents, a practice lying at the bottom of all such great business enterprises.

The conveniences of their regular office desks have gained for them a popularity which reflects no small amount of credit on their originality. These desks are supplied with pen rack, revolving ink-stand, and blotter holder. This last mentioned device holds the blotter on a tilting shelf by a weight attached to the blotter by a cord. When the blotter is used the shelf drops and forms an inclined plane, up which the weight draws the blotter when it is released, and then tilts the shelf up again. A waste basket is fitted under the desk between the tiers of drawers, which arrangement has proved a great convenience. The lowering of the roll top locks all the drawers, and when closed is secured by a spring lock.

Typewriter desks have been made by the score, but the Cutler model is the neatest and most serviceable yet produced. When closed it makes a very compact appearance, having a regular roll top with three drawers underneath, all enclosed between two solid plain sides and panel back. The top may be rolled back, and a shelf, upon which the typewriter rests, drawn out. Under this are two sliding shelves which may be drawn out side ways as a support for copy, etc. Above and in the same compartment with the typewriter, there is a shelf for stationery. Altogether, this forms the most complete outfit on the market.

To cap the climax, a cabinet letter press is devised, the operation of which requires but a pressure on a foot lever. All the parts carrying the strain are made of iron, and they are susceptible of quick and accurate adjustment. The top of the cabinet serves as the bed of the press, and a finely finished, iron braced piece of wood distributes the pressure over the letter book. This piece is hinged at its back to a strip of wood carrying downward extensions as guides, and spiral springs to keep it raised. From the extreme sides of the iron braces of this hinged piece are run iron draw-bars to the foot lever, and above the point of their connection is run from the foot lever to the iron brace under the top of the cabinet, a pipe, adjustable in length by a wheel. Extensions of the pivots which run through the draw-bars from the foot lever, enter grooves in the frame work of the cabinet. When not in use the top piece may be swung back, but when allowed to rest on the letter book the foot lever is in the proper position to be operated. Upon depressing the lever, the lower ends of the draw-bars and the lower end of the adjustable push-bar are separated longitudinally, the upward rear extension of the pedal which carries the push-bar passing the line of force of the draw-bar, and being forced against a shoulder on the cabinet. The consequent drawing together of the upper ends of these bars gives the requisite pressure for the copy, after which the foot lever is released and the top piece swung back out of the way. The construction is most simple, and the time consumed in its operation is not worth considering.

All the details of Cutler's work are attended to with the utmost care, and altogether, the workmanship ingenuity exhibited by their output is really remarkable.

Earliest Inventors of Paper.

Mr. Clayton Beadle, in a recent lecture, treating on the subject of the invention of paper proper, that is, paper in the modern acceptance of the word, affirms that the Chinese were undoubtedly the inventors of paper, as they were of gunpowder, but in neither case have they always received the credit that is their due. Credit has been given to Joseph Arma, an Arabian, for having in the year 704 invented the art of making paper. The leading authorities agree, however, that the Chinese made paper from cotton rags centuries before the knowledge of it came to the Arabs.

On the Ethics of Patent Practice.

[BY A. P. GREELEY, ASSISTANT COMMISSIONER OF PATENTS.]

An ethical system must have as its corner stone the idea of fair play between man and man.

The client who places his interests in the hands of an attorney should fully trust him. I am aware that sometimes confidence is misplaced; more often, I think, as to the ability than as to the integrity of the patent agent. But without full confidence the agent is handicapped from the beginning, and cannot justly be held responsible for ill results.

Almost every patent attorney knows what a bore a garrulous inventor may become; and a prolific correspondent may be almost as tiresome; but a long experience has taught that great caution in shutting off the flow of froth, even when a subject seems exhausted; for many a time in what appeared to be mere chaff, would lie buried the grain of invention destined to grow into something of great value.

Gen. Leggett used to say "it isn't every man who carries a condenser." We find out the truth of the proposition, alas, too often. And the attorney who finds a client who can briefly and clearly describe his invention, should value him above much fine gold, yea above a "Klaim on the Klondike." But until such men of genius in invention and expression are much more numerous than now, it will not do for the average practitioner to ignore the slow thinker who painfully evolves a thought, and by needless iteration seeks to convey an idea. Let the attorney be patient with the inventor who is trying to tell all of his story.

But if the inventor wants to keep in his own possession a part of what he should tell his attorney, let him hunt for someone he can trust fully, or both agent and client will find themselves in hot water before the business is complete.

As the client must fully trust his attorney, so must the agent fully inform his client.

I know it is exasperating to have to explain, and re-explain to a slow thinker, a mechanical proposition which seems as plain as 2 and 2; but sometimes I have been surprised to get from one of these same mental plodders a bit of information which would knock out an accepted theory, until said theory would appear as wrinkled as a bursted balloon. Therefore it will not do to assume, as attorneys do, that it isn't worth while to explain much about the status of, say, a pending application, "because the client will never understand it." Whether he does understand it or not it is his right to know, and the agent who does not keep his client informed of the important matters connected with his claim, is not dealing fairly with his client.

I do not mean by this that the agent shall write to his client every time an examiner asserts that "a horse chesnut and a chesnut horse are mere mechanical equivalents;" but I do believe the client should be informed as to the state of the art, even if that state is unfolded as a rather disagreeable surprise to both agent and inventor; for the interest of the client is generally much greater than that of the agent; his right is certainly paramount; by full and early information the client may often be able to protect an investment, when, without the information, he would go on in fancied security to certain disaster.

I am quite convinced that the greatest mistake made by reputable practitioners is in the failure to keep their clients fully informed as to where they stand relatively to other inventors in the same art.

It is a little hard, sometimes, to own up to a client that one has been a little too sanguine; or has missed a reference; and perhaps attorneys are a little too prone to say, "the examiner is mistaken, and his objection amounts to nothing." But fair play demands that new truths be told as they reveal themselves, even though "the truth hurts."

Patent attorneys, at least those in Washington, are as a rule intelligent and honest. There are over one hundred attorneys in Washington who make a specialty of patents. Perhaps a dozen of these are men of whom the rest of the profession are ashamed. Some few attorneys by an impudent assertion of superior facilities for the prosecution of patent suits or applications have at times temporarily deceived many inventors. In the long run it has generally been found that an attorney who resorts to unusual methods to secure business, such for instance as offering prizes, chromos, etc., deducts the cost of the chromo from the fee received; and what he gives in chromo he does not give in attention to legitimate business.

Some attorneys have advertised for new and original ideas along certain lines, when a search of

the records of the patent office would disclose the fact that such ideas are in the main already well known, and that the chances are that any further investment in that direction will be a losing one.

In view of recent revelations I might, perhaps, have been warranted in still stronger statements; but the above assertions seem correct as far as they go.

While I think a patent attorney should inform his client as to his general position relatively to the art in which he is working, I do not believe he should or can generally place an estimate of commercial value on any invention in advance of introduction. Attorneys have been disappointed often in the outcome of the most promising inventions. I have been so many times astounded at fortunes made from inventions for which I would not have given 15 cents; that I know as to my own foresight, and fully believe as to that of every attorney, that it is of little worth, and at best a mere guess.

On one of the very narrowest patents and one which the inventor was told was not worth a \$100, has paid not less than \$10,000 a year for the last ten years. "And there are others."

In the early days of the telephone, a discussion between the commissioner of patents and the author of the greatest text book on mechanical science, and the inventor of photo-lithography. They all agreed that the telephone was a curious scientific toy, but would never be used in business, because, as one of them put it, "business must be done in black and white."

Therefore when an inventor asks what his invention is worth in dollars, tell him the truth, say "I don't know." If he wants to know its scope, I think an attorney can tell him; and may tell him further that nine times in ten the commercial value of an invention depends vastly more on the business management than on the originality; but no one can tell any better what his patent is worth, before development, than he can tell him how fast his horse may trot, before the colt is foaled.

And if any fellow says he knows the value of any new invention, I believe he lies—under a misapprehension.

To sum up my idea of what is ethical for the patent solicitor, I should say he must think carefully and act cautiously for his client, tell the truth, "pull strong and to be fair" in all his dealings with him and not to mislead him about the smallest matter.

Floating Factories for Tinning Fish.

A plan has just been brought forward in Sweden referring to the construction of floating factories for the manufacture of all kinds of tinned fish, etc. The factory would consist of sea-going vessels, with complete manufacturing installations on board, which vessels would anchor close to the fishing fleets. By this means the raw material—the fish—could be taken in hand when absolutely fresh, and, the factory being portable, it could at any time be removed to the most favorable place for obtaining the fish, according to the seasons and other incidental causes.

Protection of Railway Crossings.

As a preventive of accidents which daily occur at railway crossings, the Great Northern Railway Company have for some months past been testing a novel method of warning the public by means of a neatly-contrived piece of mechanism. When an approaching train is within about a mile and a quarter of the crossing, the weight of the engine passing over a certain spot moves a mechanical device, thus causing a bell fixed at the crossing to ring continuously until the train has passed. The method has, so far, worked satisfactorily as a very dangerous crossing on the Hatfield and Luton branch line, and will, it is expected, be brought into use throughout the whole of the Great Northern system.

Relics of the First Atlantic Cable.

It is announced that the National Museum, in this city, has secured the Cyrus W. Field collection of documents, autographs, telegrams, and cablegrams relating to the first Atlantic cable. The journal kept by Mr. Field, and the notes of deep-sea soundings made by him and the officers of the Great Eastern, form part of the collection, which also includes Mr. Field's private library. There are also copies of medals presented to that gentleman by congress and by the French Government, engraved resolutions passed by members of bodies in America and Europe, a cane made from the wood of the Great Eastern, cases containing sections of the first cable, and those evolved from it, and the globe used by Mr. Field while working out his plans.

inventors to send to them their efforts at invention, together with sums of money, for the purpose of having preliminary searches made in each case to determine the probable patentability of the invention. Upon the result of this preliminary search depends the future action of the inventor. If the search be properly made, if it be a thorough examination of the records of the Patent Office by a competent person skilled in such matters, and if on such a search no reference is found, the inventor may reasonably expect that his invention, or some feature thereof, is patentable. If, on the other hand, the search discloses anticipating references—that is, that the invention is not new—and the inventor is informed of that fact, he knows that he can not get a patent and that further expenditure of money in attorneys' fees or applications fees is useless—is throwing his money away. In order to disclose any references that may exist in the records of the Patent Office which are accessible to the public, it is necessary that the search be made by a competent person skilled in this line of work, able to recognize a reference when he sees it, and that this expert searcher take sufficient time to fully understand the invention on which he is making the search, and that he take sufficient time to make a thorough and complete examination of all classes of invention which may reasonably be supposed to have any bearing upon the invention.

The importance of this search is fully recognized by the respondents, as appears from their pamphlet "How to Get a Patent" (see pp. 24 and 25):

The value of such a report depends upon the carefulness with which the investigation is made and the skill and experience of the examiner making it. * * * We should * * * advise all inventors * * * to have a special search made. * * * Our report, if adverse, will save them money, as they will not persist in fruitless efforts to obtain a patent at a loss to themselves.

It may be that in some cases an anticipating reference has been found by an inexperienced and incompetent searcher. It may be in some cases that an anticipating reference has been found in a very few minutes. In general, it may be assumed that an unfavorable search—that is, a search which discloses an anticipating reference—takes less time than a search which fails to disclose a reference, for as soon as the anticipating reference or references is disclosed the search is complete.

But in order to be satisfied that an invention is not anticipated a long search is often necessary. This is admitted by respondents' witness Bond (p. 643,) it being stated that such a search is sometimes a matter of days. No attorney is justified in reporting that a thorough examination of the records has been made and no reference found unless such search has been prosecuted by a competent searcher and in a thorough and careful manner. No attorney is justified in accepting the favorable report of an inexperienced or incompetent searcher, or the favorable report of even an experienced and competent searcher unless that searcher has had sufficient time within which to make a complete and thorough search.

Further, it is the duty of the attorney not only to have the search properly made, but it is also his duty to report the result of the search fully and correctly to the inventor. A false or misleading report of a search is as deceptive as if no search had been made. Even though the search fails to disclose references which so completely anticipate the invention that there is no possibility of obtaining a patent, it may be that references found upon the search approach the invention so closely as to throw doubt on the advisability of taking out such a patent as could be obtained. Where this is the case, the favorable report should call the inventor's attention to and explain the bearing of such references, so that the inventor may acquaint himself with the condition of the art as it bears on his device.

see page 22 of "How to Get a Patent," before referred to.

The respondents, as is shown by the evidence and admitted, employed inexperienced and incompetent searchers. Not all of their searchers were inexperienced and not all were incompetent. There has been since the beginning of this year some more or less effective supervision of the inexperienced and incompetent searches by persons who were both experienced and competent. Yet supervision is not enough. An incompetent searcher can not be trusted to make proper searches unless the supervision amounts to practically taking the work out of his hands.

No less than nine searchers employed by the respondents are shown by the evidence to have been without experience as searchers prior to their employment by the respondents. These are George Byrne, Jackson, McGowan, Alex Wedderburn, H. H. Byrne, Addison, McGowans, Berry, and Gurley. Of these, George Byrne was discharged for incompetency and afterwards re-employed (p. 653). Gurley was admittedly incompetent (p. 645), and Alex Wedderburn's work is stated by Gillis to have been poor (p. 229).

The searchers, incompetent as well as competent, averaged, during the period that Bond was in charge of the search department, seven and one-half searches a day, the search in each case including

reading up the case as well as examining the records of the office (p. 641). At one time, prior to January 1897, an order was issued requiring searchers to make twelve searches a day (p. 193 and affidavit of George Byrne). Gowans testified that he understood that nine searches a day were required (p. 107.) Some of the searchers made as high as eighteen searches a day; others made twelve or more. Berry, an inexperienced searcher, made five searches the first day of his employment, six the second day, and five the third (p. 440). Gowans, an inexperienced searcher, made two hundred and fifty searches in thirty one working days (p. 110.)

There was constant pressure to hurry the searches (pp. 189-192.) Searchers were urged to make reports of searches within twenty-four hours (pp. 192-198.)

The number of searchers employed in June, 1896, was three (George Byrne's affidavit,) one of them being George Byrne, afterwards discharged as incompetent. Gillis states that but four searchers were employed when he took charge of the search department, September or October, 1896 (p. 235), and that the largest number of searchers employed under him up to January 15, 1897, was six or seven (p. 236.) Four searchers only signed their names on the back of the order issued by Gillis on December 28, 1896 (p. 195). Eight or nine searchers were employed during the period that Julihn was in charge of the search department, January 15, 1897, to February 15, 1897 (p. 769). The average number of searchers during the period that Bond was in charge of the search department, February 15 to May 7, 1897, was but twelve or thirteen (p. 645).

These searchers, it is stated on behalf of respondents, in two years reported on 33,000 inventions. Of these the searchers reported unfavorably on 60 per cent or more, or 20,000 in round numbers. That this insufficient number of searchers, many of whom were inexperienced and some of whom were incompetent, were able to find anticipating reference in 20,000 cases, shows what the kind of crude conceptions and supposed inventions were gathered in by the respondents through their advertisements and their pamphlets and papers. It shows that large numbers of persons were falsely induced by the respondents to believe themselves to be inventors, and were led to send to the respondents fees which should never have been sent.

This raising of false hopes is demoralizing to these persons. It has no other purpose than to secure from them money for searches, money, if possible, for applications for patent, money for foreign patents, money for advertising, money for "write-ups" in the "National Recorder," and money for appeals. It shows a reckless disregard of the rights of people, a disposition to secure money by any misrepresentation, any pretense, however false.

The searchers employed by the respondents up to December, 1896, made reports either "favorable" or "unfavorable." Later they were instructed to report "doubtful" those cases in which there was doubt as to patentability. The report made by a searcher, however inexperienced, however incompetent he might be, and however hurried and incomplete his search, was, up to January, 1897, accepted by the respondents and a report sent to the client that his invention was patentable (p. 163). There was no revision of favorable reports up to January, 1897, (p. 163). Subsequent to the 1st of January, 1897, favorable reports were revised in some cases, but not always (p. 185). Subsequent to the 1st of January, 1897, there seems to have been a rule of the respondents that searchers would be held accountable for improper searches. If a reference was found by the Office which completely met a case on which a favorable report had been made the searcher, under that rule, would be discharged (pp. 165, 367). If, when a research was ordered, an anticipating reference was found the searcher, under the rule, would be docked for the research (p. 368). Yet, though references were cited by the Office completely anticipating inventions on which favorable report had been made and though references were found on researches, no instance of the discharge or docking of a searcher for making an incomplete search has been brought to light by the respondents. Inquiry was repeatedly made of the witnesses, Bond and Julihn, put upon the stand by the respondents, for such instances and they were unable to furnish them. This indicates that the rule as to discharge or docking of a searcher was a mere pretense, never intended to be put into effect.

At the time that these changes in the respondents' methods of doing business, above referred to as beginning subsequent to the 1st of January of the present year were made it appears that the criticism and condemnation of the methods of these respondents had become matters of common report. Bond admits that before he became connected with the respondents he had heard that there "were some complaints against him" (Wedderburn) (p. 648).

About this time occurred the remarkable correspondence between these respondents and their employee, Julihn, which was introduced in evidence by the respondents (p. 716). This correspondence consists of a letter written by the respondents to Julihn in reference to his taking charge of the

search department and his reply. The necessity for transacting such business in writing when the employee was in constant personal communication with the respondents is not apparent. It shows, if it shows anything, that up to that time the "best possible preliminary examinations" had not been made "in all cases" (letter January 15, 1897, to Julihn, p. 716), and it shows that the respondents were especially anxious that something to indicate that they had experienced a change of heart should be on record if it should be needed in any "case which might come before the office or court" referred to by Gillis (p. 186). This correspondence shows clearly that the respondents were aware, at least as early as the beginning of January of the present year, that their methods were criticised and that such criticism was deserved.

Though there was no revision of favorable reports, though the statements of inexperienced and incompetent searchers that they were unable to find a reference were accepted as satisfactory evidence that the reference could not be found, the unfavorable reports of searchers were always revised. Their judgment adverse to patentability was never accepted, their judgment favorable to patentability was, substantially, always accepted.

This failure to revise the favorable reports of inexperienced and incompetent searchers or to have researches made upon the cases favorably reported by them, when by such revision or research an anticipating reference might have been disclosed and the inventor thereby prevented from paying further fees, indicates not only reckless disregard of the rights of the client and indifference to the agreement entered into with respect to the search, but deliberate and intended fraud. The respondents had no right to accept as true and complete searches the searches made by such men as they employed under such circumstances as they were forced to work under. These searchers and the circumstances under which they worked under the control of the respondents and they must be held to a full responsibility for their competency and care, particularly in view of the fact that the necessity for care, skill, and experience on the part of the searcher was fully recognized by the respondents, as appears from their pamphlet, "How to Get a Patent," page 24:

The value of such a report (the report of search) depends upon the carefulness with which the investigation is made and the skill and experience of the examiner making it.

The report sent out by the respondents in those cases on which the searchers reported that they were unable to find references is, as set forth in the stipulation, as follows:

We have carefully considered your invention and made a thorough examination of the records of the Patent Office, and fail to find any reference which, in our opinion, will prevent you from securing a patent. In view of the favorable result of our search we have to report that it is our opinion that a patent can be obtained.

The next remittance now due is \$20, to cover the first Government fee of \$15, and \$5, the cost of one sheet of official drawings, and upon receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution. Your invention appears to be a good one, and if properly protected and handled may prove valuable from a financial point of view.

We have entered your invention in competition for our prizes, in connection with which you have our best wishes.

The total cost of preparing, filing, and prosecuting an application for patent upon a simple invention before the primary examiner is \$45, which covers \$15, the first Government fee, and \$5, the cost of one sheet of official drawings, payable when we are instructed to prepare the application papers, and \$25, our fee for services, which should be returned with the application papers after they have met with approval and been executed. In addition to the above is a final fee of \$20, which is payable at any time within six months after the application has been examined and allowed.

As soon as the application is filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to seek a purchaser, if you desire us to sell the patent.

For your further information we inclose herewith a copy of our \$1,800 prize offer, and also send under separate cover our pamphlet, entitled "How to Get a Patent." If you have received these circulars before, will you kindly hand them to some friend who is interested in patent matters?

Very truly, yours,

A form of this report shown to have been used in nearly every case which is in the record as an exhibit is as follows:

We have received your letter of the —, inclosing — to cover the cost of a special search in the matter of your invention in —.

We have made a thorough examination of the records of the Patent Office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent. We therefore have to report that in our opinion a patent can be obtained.

Please remit \$20, to cover the first Government fee of \$15, and \$5, the cost of one sheet of official drawings, and upon the receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution.

There is no doubt but that your invention is a very valuable one, and that good money could be made out of the same if properly handled.

Your invention will be entered in competition for our prizes.

As soon as the application is safely filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to find a purchaser, should you desire us to sell the patent.

We await your instructions.

The report, whichever form be considered, is not a proper form except in those cases in which there are no references that approach the invention, no references which are of importance showing "the condition of the art as it bears on his (the inventor's) device." ("How to Get a Patent," p. 22.) Where such references exist they should be cited,

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(Continued from page 139.)

allowable. Beyond question the respondents were well aware that in many of the cases in which they sent out favorable reports the invention, even though patentable, was so narrow, differed so little from prior devices, that it could not fairly or honestly be said to be of "special merit," "especially meritorious," or be said to promise "to be exceedingly profitable," even though it might be patentable. Beyond question the respondents were well aware when the order that a silver medal should be sent out in every case in which, after search, a favorable report had been made, was issued by them that the result would be that many inventors whose inventions were in no sense remarkable, in no sense valuable, and in no sense such as would be selected by any competent or honest board of awards, would receive medals and would be led to believe their invention to be of great merit. The record shows that the respondents were well aware with how much pride and pleasure would be inventors received these medals. The record is full of letters from these respondents to their clients, in which they state, "We are glad to know of your appreciation of the medal."

There can be no reasonable doubt that the silver medal scheme was fraudulent in its conception and fraudulent in its execution. It was intended to mean one thing to the inventor who received the medal and quite another thing to the respondents. It was intended that the inventor should believe the medal and certificate to be what on its face it purported to be—a reward of genius, a certificate that his invention has been selected by some competent and disinterested board of awards for its remarkable importance. Who this board of awards might be the inventor could not know, but he would naturally believe it to be composed of persons known by his trusted attorneys, the respondents, to be persons of good judgment and high standing. To the respondents and their employees this medal and award of merit meant nothing more than that some searcher had failed to find a reference, and that a favorable report on the invention had been sent to the inventor.

Such a scheme has no place in the legitimate business of an attorney.

It appears from the evidence that the National Recorder Company was at once informed of the sending out of this medal and award letter and given the inventor's address, and they at once proceeded to send to him the "write-up" letter given on page 7 of the stipulation, calling for \$5 for which they would insert in that paper a portrait and sketch of the life of the alleged inventor, a proposition which was accepted by a large number of those to whom the letter was sent. (Stipulation, p. 8.)

The letter accompanying the silver medal is clearly false, and was known to be false by respondents. Its use as the respondents used it was deceptive and fraudulent and constitutes gross misconduct.

Having by false and misleading advertisements attracted the attention of the would-be inventor and secured his address; having sent him the various pamphlets and papers before referred to, which are deceptive and misleading as to the value of simple inventions; having stirred the inventor to activity by the offer of free advice as to patentability and salability, and having in response to his inquiry given him a recklessly false and misleading estimate of the value of the invention; having by these means induced the inventor to pay for having a search made; having reported the result of the search favorably, whether properly made or not, or having sent the inventor the false and misleading unfavorable report letter as the case may be; having if deemed necessary to secure an early response, sent the inventor a silver medal and its accompanying letter; having by the use of any or all of these means secured from the inventor the first installment of fees for the preparation of application papers, the respondents proceeded to prepare the necessary papers, in many cases telling the clients that—

We have received your letter of the——ultimo, inclosing \$20 to cover the preliminary fees in the matter of your invention in——

We will immediately prepare the application papers to broadly cover the device and send them to you for approval and execution.

Your invention will be entered in competition for our prize which will be awarded sometime during this month.

This, which is in effect an assurance that the invention is a broad one, was sent without reference to the real novelty of the invention; was sent in a number of cases in which no proper search had been made, and was sent in a number of cases in which the so-called unfavorable report citing references had been sent. It was like the estimate of value, and like the silver-medal letter, calculated and undoubtedly intend to encourage the inventor to believe his invention of great value, whatever the facts might be, so that he might be in a condition of mind to receive favorably the advice to take out foreign patents, to advertise the invention for sale, and to take an appeal. All these offers were to come, and it was necessary, in order that the client should be ready to accept them, that no opportunity should be lost to impress upon him the

value and importance of the invention, whether, as a matter of fact, it was of value or was wholly unpatentable and worthless.

The application papers having been prepared, sent to the client for execution, and returned to the respondents, together with the balance of fee asked for, the application was duly filed.

In twenty of the cases made exhibits in this case the respondents, in asking for the balance of fees, asked and received from clients \$5 more than the sum for which they had agreed to prepare, file, and prosecute the case. In eleven other cases the excess of \$5 was called for but was not paid, the respondents admitting when attention was called to the matter that the sum (\$25) called for was called for by mistake and a less sum (\$20) only was due. In no case in which this excess was paid by the client was it returned by the respondents, so far as appears from the record. (See stipulation, p. 9.)

That this excess of \$5 was in fact called for by mistake I cannot believe. The slightest examination of the files should have disclosed the mistake, if mistake it was. The eleven cases in which the mistake was acknowledged should have been sufficient to call the respondents' attention to the matter. Had the respondents been disposed to deal fairly and honestly with their clients they would have been quick to notice and return the excess paid by the client if it had been called for by mistake.

I can not see that the retention of this excess of fees in these cases is anything less than petty cheating. While it is not directly shown that in any case this excess payment was returned, and there is nothing to indicate that in any of the twenty cases mentioned in the stipulation the excess was returned, it does appear, from the affidavit of Gurley and the schedule annexed thereto, that in the aggregate a considerable sum of money was returned to clients by these respondents. In some cases they returned the full fees paid to them except the search fee, but in no case, so far as shown in the record, was this done prior to January of the present year. As about that time it appears that even Bond had heard that there were complaints respecting the respondents' method of doing business, and as they were well then aware that their methods of doing business were open to serious criticism, it can hardly be claimed that this return of fees was anything more than a mere attempt to forestall just complaint. Much was made in Bond's testimony of the fact that in the Ashton case (see p. 614) the fees were returned, but when I asked if any fees had been returned in the Triacca, in the McConnel case, in the Polsley case, in the Taggart case, in the Baker case, in the first Hilliard case, in the Heverly case, in the Hinsdale case, in the Howroyd case, in all of which cases Bond had admitted that there was nothing patentable and no proper search had been made, the witness stated that he "did not recollect any of these cases" (p. 615).

In the schedules attached to Gurley's affidavit it is set forth that the total amount returned prior to January 1, 1897, was but \$118, the largest single amount being but \$20. This clearly does not show that prior to January, 1897, the full fees were returned in any case. The return to correspondents of \$118 in three months is insignificant.

The first letter sent to those who answered the respondents' advertisement was an offer to find a purchaser for the invention. This offer was repeated in both the favorable report of search and the so-called unfavorable report. To those who made inquiry with respect to selling their inventions, and in some cases in which no direct inquiry was made, the respondents sent a letter substantially to the following effect:

Replying to your favor of the——, we have to say that our terms for selling patents are 10 per cent of the first \$5,000 of the purchase price and 7 per cent of all sums in excess of that amount. All patents entrusted to us for sale are extensively advertised in the large metropolitan journals of this country. To cover this expense we also make an advertising charge of \$20, which is payable in advance.

On receipt of this remittance, together with your instructions, we will be pleased to take up the case and will use our best efforts to effect a sale for you.

This was sent in no less than thirty-seven of the cases made exhibits in this case. (Stipulation, pp. 9, 10). In three or more of these cases the so-called unfavorable report had been sent citing anticipating references. In twelve of these cases this sale offer was sent after the application had been rejected by the Patent Office. (Stipulation, pp. 10, 11).

In four cases, in none of which has anything been allowed by the office and in three of which there is nothing patentable, the advertising fee of \$20 was paid. (Stipulation, p. 10). It is needless to state that in none of these cases has the invention been sold.

The propriety of an attorney or solicitor of patents combining the business of soliciting with that of selling patents is, in my opinion, questionable. Doubtless it may be done honestly, but the respondents' methods are shown to be such as to sell the clients rather than their patents. These respondents, in their pamphlet "How to Get a Patent," on page 31, publish a "warning" against these concerns which offer to sell patents in language which describes with scrupulous exactness the reprehensible

methods which they themselves practiced to deceive their clients and convey a correct estimate of the moral quality of their practices. This "warning" is as follows:

Patentees, as soon as they receive their patents, or within a short time after, will be beset, importuned, and harassed by offers, propositions, requests, and solicitations of all kinds and descriptions, coming from persons, firms, and companies not only in this country, but also in Europe and even in South America. * * * The propositions will be very attractive and temptingly prepared—just the thing to catch the eye and fancy of the unwary. The offers will appear "gilt edge." The circulars accompanying them are all high-sounding and rose-colored. Patentees will be surprised at the great attention their inventions have attracted at home and abroad. Glorious visions of immense fortunes almost within their grasp will be held up before their eyes. These propositions will vary with the ingenuity of their authors. Some will pretend to want to purchase patents outright; others to place them on royalty; and still others to sell them on commission, inclosing formidable-looking contracts drawn up in an impressive way, highly advantageous to patentees. * * * All of these propositions, though apparently different, will have this one point in common—they will require the payment of a fee in cash in advance. One will say it is necessary to have money, calling it an extremely small amount, to defray the cost of securing copies of the patent for distribution; another will call it a membership fee; another, the cost of advertising the patent; another, the cost of having circulars printed, and so on. There is no end to the pretexts. None of these humbugs will help you. Do not send them any money. Every cent you pay them is money thrown away.

With the exception that these respondents do not wait to make this offer until the invention is patented, but make the offer not only before the patentability of the invention had been determined, but even after that question has been determined adversely in some cases by their own searchers, in other cases by the Patent Office, this scheme of soliciting inventions for sale against which they so hotly condemn is precisely the scheme which they adopt.

I have no doubt that the warning thus published by the respondents is fully justified.

It has been brought to my notice that a number of concerns scattered throughout the country are practicing precisely the fraudulent methods described in the above-quoted paragraphs, with the result of deceiving inventors and defrauding patentees. Many of these concerns do not make any pretense of practicing before the Office and these can not be reached directly by this Office. It is to be regretted that such concerns should be permitted to use the United States mails in carrying out their fraudulent schemes, and I have the honor to suggest that the matter be called to the attention of the postal authorities.

The adoption by these respondents of the same scheme against which they warn their clients shows beyond a doubt a deliberate intention on their part to defraud. This intention was carried into effect in the four cases above referred to, in which the advertising fee of \$20 was paid, and they were in these cases clearly guilty of fraud.

In a large proportion of the cases filed as exhibits in this case the respondents advised their clients as to taking out foreign patents in substantially the following language:

We deem it our duty to suggest to you the advisability of taking out patents on your invention in Canada and Great Britain at least. The invention is a most useful one, and should be amply protected, so that you can reap the reward to which your ingenuity entitles you. We believe that the device would have extensive sale in these countries, which are so closely associated with our own in a commercial and business way. The cost of a Canadian patent is \$30; a British patent, \$65. We will be pleased to furnish you any further information that you may desire in regard to foreign patents.

This was sent in a number of cases in which anticipating references had been found on their own search, and had been cited to the client in the so-called unfavorable report letter; it was sent in not less than ten of the cases made exhibits in this case, after the application had been rejected by the Patent Office on references which clearly met the invention, as is admitted in six of these cases; it was sent in at least three cases after the applications had been for the second time rejected by the Patent Office, and in two of these cases it is admitted that there is nothing patentable.

In one of these cases in which substantially this advice as to foreign patents was sent after the application had been rejected by this office, the correspondence clearly bring out the utter disregard by these respondents of the obligations resting on them as the trusted attorneys to whom their client looked for advice and protection from those who would cheat and defraud her. The record shows that in this case, the application of Anna S. Hartman, the client sent to the respondents on April 13, 1897, a letter containing the following:

I received your letter of April 8. I was very glad to know that I could sell the invention. * * * But I fully trust you. * * * Mr. Wedderburn, I would like to know, please, the price of Canada, Germany, and France, as I would like to have it protected in those countries, if you think it would be well.

This client was a woman in far from prosperous circumstances, and in response to this letter stating that she fully trusts the respondents and stating that she wishes to have the invention protected in foreign countries "if you think it would be well" the respondents wrote (p. 431) stating that—

We are indeed glad to hear that you contemplate putting your invention in our hands for sale. * * * In answer to your inquiry, we desire to state that the cost of a Canadian patent is, in an ordinary case, \$30, a German patent \$75, and a French patent \$70. * * * Upon receipt of your instructions and the necessary remittance * * * we will prepare the

necessary application papers and forward them to you for approval and execution, etc.

The letter from which this is quoted was sent, although the respondents knew the applicant had nothing patentable, to a client who "fully trusted" the respondents and asked "if you think it would be well" to take out foreign patents.

More complete violation of the obligations which the respondents well knew rested upon them as attorneys, more complete violations of the requirements of decency, fairness, and honesty, it would be hard to find outside of the record of this case. This, it is to be observed, occurred during the present year, but a few months ago, some months after the reforms in the practice of the respondents are said to have been made, on or about the 1st of January, 1897. It is true that in this particular case no money was paid by the client for taking out foreign patents, but the methods and fraudulent intent of the respondents are clearly here brought out.

In the case of English (p. 630), a case in which an anticipating reference had been found upon the search made by respondents and cited to the client in the usual so-called unfavorable-report letter, a case in which it was so clear that there was nothing patentably new that the respondents deemed it advisable on March 9, 1897, after the criticism and condemnation of the respondents' methods had resulted in charges made before the Post-Office Department, to return to the inventor the fees for the United States application, these respondents, on January 8, 1897, after the application had on January 5 been rejected by the Patent Office, filed an application for patent in Canada and informed the client on January 20 that such application had been duly filed. On May 13, 1897, the respondents wrote English that—

We inclose herewith a blank application and authorization for patent in Great Britain, which you will please sign, etc.

This letter of May 13, 1897, referred to a letter from the respondents to the client dated May 11, 1897, which is as follows:

We beg to acknowledge receipt of your favor of recent date and have carefully noted everything stated therein with respect to your interests.

That you could not secure a United States patent to cover your "envelope" is a matter of much regret to us, but it was impossible to induce the Patent Office to pass your case to allowance in view of the prior state of the art. Under the circumstances we can assure you that everything was done for your interests that could have been done by anyone.

We are very sorry to have to advise you further that, as you feared would be the case, the Canadian patent office has practically rejected your case. After carefully examining the foreign reference cited by said patent office, we deem it our duty to inform you that, in our judgment, there is no chance for securing a Canadian patent.

It gives us pleasure to say, on the contrary, that there is no doubt of getting a British patent for you to cover your device. Our charge for this service is, as you are aware, \$65, of which we hold \$50 to your credit. In view of the unfortunate outcome of your Canadian application, we are willing to allow \$15 of the amount paid in that connection to go towards defraying the expense of your British patent. The necessary application papers will, therefore, be prepared without delay and forwarded to you for approval and execution.

Whenever you are ready to proceed toward obtaining foreign patents on your "lamp-wick attachment," we shall be happy to place our best services at your disposal. Do not hesitate to command us whenever we can be of assistance to you in this or other matters.

Trusting that this letter will be satisfactory, and awaiting further suggestions or instructions at any time, we are,

Very truly, yours,

JOHN WEDDERBURN & CO.

Of course the client could obtain a British patent, because the granting of such patent does not hinge on the relation which the invention might pertain to the prior state of the art as disclosed by a careful examination, such as is required by our law. But the respondents had no reason to suspect that this British patent would be worth a penny when granted. In fact, they well knew, as appears from their pamphlet "How to Get a Patent" (p. 53), it would be invalid and worthless.

In this case the respondents, with full knowledge of the fact that the invention was not patentable, took advantage of the confidential relations with their client to defraud him of the amount of money necessary for the Canadian application.

In the case of Fossett (pp. 394-395) part of the fees for British and Canadian patents were accepted by the respondents after the applicant's invention had been rejected by the Patent Office. The British patent was of course granted, but this patent is, as is well known to the respondents, necessarily invalid and worthless.

Advice to take out foreign patents should be given to clients only in those cases in which it is clear that such patents, will be of advantage to the clients. Foreign patents, unless the inventor has means for exploiting the invention, are very often particularly if the invention is a narrow one in a field already well occupied, of no value whatever to the inventor, and give him no return for the money which it requires to take them out. Besides the fees necessary to take out these patents, there are in most foreign countries large annual fees required, in default of payment of which the patent lapses. This fact, though mentioned in "How to Get a Patent," was not, in any letter in evidence herein, brought to the clients' attention. In cases in which the invention is not patentable the advice to take out foreign patents presents a plain case of attempt to defraud

the client for the benefit of the attorney. That this is gross misconduct is not open to question.

This practice of advising clients to take out foreign patents, in any and all cases of which these respondents are clearly shown to be guilty, has become a widespread and serious evil of the business of soliciting patents. It is notorious that there are numerous concerns throughout the country which make it a practice to urge not only applicants for patent but even those who have taken out patents here to apply through them for patents in foreign countries, with the full knowledge that such patents, though obtainable by reason of the fact above referred to, that in most foreign countries there is no examination as to novelty preliminary to the grant of a patent, would be necessarily invalid by reason of the issue of the patent here. Many of these concerns do not attempt to practice before this Office, and for this reason can not be reached directly by you. The attention of the Post-Office authorities should, in my opinion, be called to these concerns with a view to refusing them the use of the mails. Throughout the progress of the applications prosecuted by the respondents, so far as the applications made exhibits in this case are concerned, the record shows that they studiously concealed the true condition of the case from the clients when that condition was unfavorable, and did not hesitate to positively misrepresent the condition of the case, in every instance representing the condition as being more favorable than the facts justified. (See the cases of Sooker and Sackett and others, on page 15 et seq. of the brief in support of the order to show cause.) In many of these cases, as pointed out, the respondents are shown by the record to have been aware that the client had or believed he had other inventions on which he might be induced to pay them fees.

This misrepresentation of the condition of the case was and could have been for no other purpose than to deceive the client into the belief that his invention was patentable, that he might be in a condition of mind ready to accept the respondents' sale offer, the offer to obtain foreign patents, and to send to the respondents other inventions with fees for searches or for preparing application papers.

It had the same deceptive purpose that characterizes the correspondence in which the chief of what the respondents were pleased to call their sales department gave his opinion that the invention was worth such a sum of money, in which the invention was stated to be very valuable, of special merit, broadly covered, etc. It was all a part of the same scheme to inspire the client with high hopes and full confidence, in order that the respondents might take advantage of that confidence to their own profit, whatever it might cost the client.

The respondents urge that there was no obligation resting on them to notify their clients of every action taken by the office, or every step taken by them in the prosecution of the case. In a sense this is true. An attorney worthy to be intrusted with the prosecution of a case should be trusted to take such action as may be necessary for the protection of his client's interest without stopping to consult him in advance as to every step. But the attorney is bound by the obligations which rest upon him to inform the client of such steps in the progress of the case as he should know, and the attorney should at least tell the truth and treat his client with candor when he does inform or advise him in regard to his case. If he does not do so, and is at the same time urging further expenditure of money for purposes which he knows can not result in advantage to the client, his misrepresentation and concealment of the true condition of the case is conclusive evidence of fraud.

There can be no doubt that concealment by the attorney from his client of the fact that the Patent Office has rejected his invention, while the attorney is at the same time urging the taking out of foreign patents or the payment of money to the attorney for advertising the invention for sale, is gross misconduct.

In a very large proportion of the cases made exhibits in this case the respondents, as is admitted in the stipulation (pp. 12-13), after final rejection of the application by the Patent Office, sent the following letter:

We are in receipt of your favor of recent date, and regret to inform you that the Examiner in charge of your application for patent for improvement in ——— has finally rejected the same upon reference to certain prior patents. We have tried in vain by repeated amendment and argument to induce the Examiner to alter his holdings, and the action taken is final so far as he himself is concerned. The only course now open to you to pursue is to take an appeal to the Board of Examiners-in-Chief, the cost of which is \$25, \$10 being the Government fee and \$15 our fee for presenting the appeal. If you desire to take this course and will remit the above amount, we will immediately prepare the necessary papers to present the appeal in the strongest possible manner, and use our utmost efforts to secure a reversal of the Primary Examiner's decision.

In none of the cases in which this letter was sent, so far as disclosed by the evidence, had the respondents at any time given the applicant any information as to the references relied on by the examiner or his reasons for rejecting the application. In all these cases this information appears to have been studiously concealed from the applicant. In many of these cases the applicant had been repeatedly as-

sured that his invention was meritorious and valuable, and that it was undoubtedly patentable and salable. In some of these cases the search had disclosed anticipating references which had been cited to the applicant in the so-called unfavorable-report letter. In a very large proportion of these cases there was, as admitted by respondents, nothing patentable. In other words, this letter, without explanation, information, or advice, which a capable and honest attorney is bound to give his client, as to the wisdom of appealing, from which the client might well infer that it was important to take an appeal, was sent by these respondents in numerous cases in which they well knew there was nothing patentable; in which they well knew that appeal was useless and a mere wanton appropriation to themselves of their client's money.

It is urged that this letter does not advise an appeal. That is true, and in that it lacks the elements of honesty and candor—it gives no advice in a matter in which the competent and honest attorney does give advice one way or the other. He is supposed to know what ought to be done. His client only knows through him.

In view of the previous misrepresentations and concealment of material facts, the object and intent the failure to advise is not left in doubt. It is of clearly not such a letter as the respondents in fairness and justice to their clients should have written.

An attorney is employed because he is of greater skill and experience in prosecuting applications than his client. He is bound to give his client the advantage of his skill and experience. When he not only fails to do so, but omits that plain duty for an unworthy purpose, he is guilty of gross misconduct. The respondents were under obligation to give to their clients at so critical a period in the case as that at which the question of appeal has to be considered the benefit of their best information and their best judgment. Their failure in those cases in which they knew the invention to be unpatentable to so inform their client in clear and definite terms shows the quality of their conduct.

In a number of these cases the fees for appeal were paid and were accepted by the respondents, though they well knew that there was nothing patentable in the case and that an appeal was useless. These respondents represented themselves to be attorneys of experience in practice before this Office, and were presumably skilled in patent matters; hence to accept appeal fees in such cases without hesitation or explanation and purposely keep clients in ignorance of the true significance of the examiner's rejection, thus misleading their clients as to the possibility of securing favorable action on appeal, is gross misconduct on their part.

In some of these cases in which the appeal fee was paid the respondents made no attempt, either by oral argument or by written brief, to argue the case before the Examiners-in-Chief to secure favorable action, even in cases where there was patentable matter in the case. (Stipulation, p. 14.) In the case of Triacca (p. 575) the respondents, after repeated assurance to the client that they would do their best on appeal, failed to appear to argue the case orally and failed to file a written brief. In other words, after promising to do their best they did nothing. The neglect of the client's business in this case, and it is, as appears from the record, not an exceptional case, shows gross negligence on the part of the respondents which amounts to gross misconduct.

It is admitted by the respondents that in not less than six instances, after filing an application for one inventor for an invention which was unpatentable, they subsequently filed a like application for another inventor, and in one case for two, and in another case for three, each application for the same unpatentable invention. Had this happened in respect to inventions the patentability of which was open to doubt, the respondents' excuse of oversight, mistake, inadvertence, might be accepted in extenuation of the offense. But three of these successively filed applications were for "string envelopes," a class of invention notoriously old; two were for envelopes perforated at the end; two were for stove-pipe sections provided with screw threads for joining sections together, an invention notoriously old; three were for cooking pots in which an inner pot which can be lifted out contains the vegetables to be cooked, an invention also notoriously old.

The nature of the inventions in these cases of duplicate applications shows conclusively that the respondents were grossly negligent and indifferent to the interests of their clients in making searches, in that they failed on repeated searches to find references which any competent searcher should have found on the first search, and that they deliberately disregarded the information bearing on the novelty of the invention brought to their attention by the Patent Office.

It is clear that when so many applications for string envelopes, screw stovepipes, cooking pots, and other unpatentable inventions have been simultaneously or successively prepared in the office of the respondents, they either were grossly negligent in not knowing the fact, or, if they knew it and

never the less filed the application, they were guilty of a gross offense against law and morals.

The respondents in their pamphlet "How to Get a Patent," on page 24, state that "it is extremely rare that a patent is refused on an invention which we report new and patentable." That statement was written in utter disregard of the truth and obviously written to deceive. The records of the office, in evidence in this case, show that of nearly thirty-eight hundred applications filed by the respondents between March 3, 1895, and March 3, 1897, only eighteen hundred and eighty-four, or a little over 50 per cent, had, on August 1, 1897, been allowed or found to contain allowable claims. Nine hundred and nine of these cases had been finally rejected, and of the remainder nine hundred and forty-one stood on August 1st, with all claims rejected. This record evidence shows how utterly untruthful and deceiving is the assurance the respondents gave their clients.

It is true that some of these rejected applications are cases in which the respondents had found references on search and had cited these references to the client in the so-called unfavorable report-letter; but this fact is hardly more to the credit of the respondents than an admission that the invention in all these rejected cases had been reported patentable by them on the search.

The statement in the pamphlet "How to Get a Patent," above referred to, is in view of the facts a falsehood, promulgated to deceive the unwary.

There can be no doubt that the facts clearly brought out in the record as above set forth fully sustain the charges on which the order to show cause was based, except the charge respecting the Sulzer letter, which charge was withdrawn.

The facts brought out in the record show further that these respondents carried out in their practice a skillfully planned scheme of deception, misleading their clients without regard to the dictates of truth, justice, or decency. By false and high-sounding promises they played upon the credulity and desire of their clients to make money quickly, and led them on by misrepresentation and concealment of material facts to send out money, and more money, the Patent Office and the business of patent soliciting being used as an agency wherewith to practice their schemes to make money easily and, as they hoped, without risk.

The statement made on their behalf of the number of searches made by them in two years, 33,000, in 60 per cent of which they found anticipating references, and the fact shown by the record that nearly 3,800 applications were filed by them in two years, in nearly 50 per cent of which nothing patentable has been found by this Office, show clearly that the respondents have by their misrepresentation and deception defrauded thousands of would-be inventors out of hundreds of thousands of dollars, and it is far from creditable to the Government that its offices and its postal facilities have been used by these respondents openly and in defiance of law to promote their dishonest schemes. To permit such methods to be practiced and to permit those who practice such methods to longer be recognized as patent attorneys or agents would be to make this Office a partner in the offense.

The Office can not, without bringing lasting reproach upon itself, permit the continuance of such deliberate and systematic deception of inventors as is clearly shown upon full and fair investigation to have been practiced by the respondents. The duty of this Office toward inventors and the public imperatively demands that the attorneys practicing before it who are shown beyond reasonable doubt to have been so utterly false to their obligations toward this Office and toward their clients, so utterly false to professional honesty and fairness, so utterly false to even common decency, should no longer be permitted to be recognized.

In my judgment the respondents, John Wedderburn and John Wedderburn & Co., have been guilty, not only of gross misconduct in particular cases, but of a long-continued, systematic, and deliberate course of gross misconduct. In justice to this Office and in justice to the public, these respondents should be refused further recognition as patent agents or attorneys, and the facts disclosed should be reported to the district attorney for such action as the delinquency of the respondents and the safety of the community demands. The fact that the United States mail was being used by these respondents to promote schemes of fraud was called to the attention of the Post-Office Department many months ago, but the matter was, I understand, placed in the hands of an official of that Department, who for some reason failed to do his duty. He has since, I am informed, been dismissed and criminal proceedings against him for misconduct in office are pending.

If it be true, as stated in the article advertising the respondents, published in the Washington Post on March 7, 1897, before referred to—an article which evidently emanated from the office of the respondents—if it be true, as stated in that article, that—

It is a remarkable fact that the firm of John Wedderburn & Co., to-day embraces more than three thousand well-known newspapers, all of which are stockholders and whose vital interest it is not only to spread abroad the fame of this firm, but also to guarantee to the public the skill and integrity of its management, and that—

It is natural that the newspaper publishers of the United States should have an especially kindly feeling for Mr. Wedderburn. A large number of them are his intimate personal friends. He has patronized them lavishly and they have generously donated their space without compensation whenever he has requested a favor for his firm or for a client. * * * The newspapers appreciate keenly the principle of reciprocity, and for every dollar spent they have been glad to devote two dollars' worth of space for the purpose of showing their appreciation of the man who has taken the first rank in his profession, largely by reason of his generous patronage of the press; if it be true, as also stated in this article, that—

Scores of Senators and Representatives have gladly availed themselves of Mr. Wedderburn's recognized ability and integrity to refer to him the business of their constituents sent to them for reference to reputable attorneys,

then it would seem that the respondents have not only practiced the deceit and misrepresentation in which they are shown to be past masters, upon the unlearned and the unwary, but have successfully practiced the same deceit and misrepresentation on the newspapers supposed to possess both high intelligence and keen business sagacity, and upon public men of the widest experience and largest knowledge of affairs.

That these respondents have not only used the offices of the Government and its postal facilities to promote their dishonest schemes, but have by their trickery and deceit, by their pretense of the highest integrity, honesty and fair dealing secured the guarantee of their "skill and integrity" from thousands of newspapers throughout the land, and the endorsement and apparent approval of public men of the highest standing indicates an astounding condition of affairs. If the respondents, shown by the record to be dishonest and dishonorable in their business methods and absolutely without integrity, could by the mere distribution of their stock and "generous patronage" secure this guarantee of their "skill and integrity" from so many newspapers, it is not to be wondered at that the would-be inventors, inexperienced and unacquainted with the ways of the world, have been helpless in their hands; it is not to be wondered at that the respondents have successfully practiced their schemes of deception upon thousands with great profit to themselves. Beyond question the endorsements thus obtained from the press and from public men have been of the greatest value to the respondents and have had much to do with securing the confidence of those whom they have deceived and defrauded, have given the respondents an assurance, a confidence and boldness which they could not otherwise have had.

If it has happened that these three thousand newspapers have knowingly lent their aid to the unscrupulous schemes of these respondents or have, for the sake of the shares of stock and the lavish patronage, shut their eyes to these schemes, then there is here indicated a gigantic conspiracy, the danger of which to the Government and to the community cannot be over estimated.

In conclusion I deem it my duty to call your attention to the fact that the respondents in the conduct of the business as carried on by them, and in the execution of their dishonest and fraudulent schemes, had the cooperation and assistance of certain persons, as the responsible heads of the various departments of their office, who were, prior to their employment by the respondents, in practice before this office, some of whom may attempt to resume practice and some of whom have in fact applied for registration under the present Rules of Practice. I can not but be of the opinion that such persons, who, having had experience in practice must be presumed to be aware of what honest and honorable methods of practice are, were willing to aid and abet the respondents in their peculiar practices and continued to do so after the attention of the public had been called to these practices by the institution of proceedings against these respondents, must be held to be sharers in the guilt of the respondents and unfit to be permitted to practice before this Office. In my judgment none of these persons should be admitted to practice or permitted to be registered, except upon clear and convincing proof that they had no part in, and were in no sense responsible for, any of the fraudulent and deceptive schemes of the respondents.

Respectfully submitted,

A. P. GREELEY,

Assistant Commissioner.

HON. BENJAMIN BUTTERWORTH,

Commissioner of Patents.

THE value of the INVENTIVE AGE as an advertising medium is unquestioned. The character of the advertisements now in its columns, and the number of them tells the tale. Circulation and results considered, it is the cheapest journal in the United States to advertise in.

A School on Paper.

APPLICATION TO COURT FOR A RECEIVER.

Under the heading "Receiver for a school. An unusual application made to the District Supreme Court," the Washington Post, of September 10th, printed the following:

"Benjamin A. Colonna, President of the American Correspondence School, having an office at 315 A street northeast, applied to the District Supreme Court yesterday for the appointment of a receiver to take charge of the business of the concern, averring that it is now hopelessly insolvent and unable to meet its obligations. The school was incorporated May 29 last, and extensively advertised in magazines and other publications, the object of the school being stated to be the giving of instructions in various branches and to teach the methods of transacting business in the different departments of the government, particularly fitting students for a civil service examination.

The directors of the school are the plaintiff, William H. Benton, and John S. Swormstedt. It is averred that he plaintiff was informed that the school could be instituted at an outlay not to exceed \$600 for him, but he says he has advanced \$1,800. Seventy-three students are now enrolled and a great many letters have been received from others. The tuition received aggregating not to exceed \$520, while the plaintiff believes the indebtedness to be in the neighborhood of \$2,400. The assets are said to be quite small.

The complainant says he was wholly inexperienced in the business of conducting a school, but was made to believe, so he says, that the institution could be made to pay. He asks that some suitable person be appointed to take charge of the effects of the concern, and that the business be wound up.

Judge Cox issued a rule yesterday requiring the defendants to show cause today why a receiver should not be appointed as prayed for."

AN INTERESTING DEVELOPMENT.

As this was a "school" unheard of and being ever on the alert to expose deceptions or frauds the INVENTIVE AGE sent a representative to make some inquiries.

By calling at the number given in the above article from the Post he found a small frame cottage in a residence section bearing no evidence of being a school. No sign of any kind was displayed. There was a young man in the house in charge of what pretended to be the office. The furniture consisted of a few cheap tables and papers scattered around in great disorder. When shown one of the catalogues he was greatly surprised to find a very pretentious publication, such that one should expect to be issued by a large university, and glancing at the list of names given as the faculty showed twenty-five names of persons, some of whom were quite prominent. This looked very suspicious as did the long list of references of prominent people from Maine to California and banks in this and other cities. Any one to see the circular would imagine that the school was well established and was in fact a big and reliable institution. A slight investigation showed it to be merely a bubble which burst with the application of the president for a receiver. An investigation of some of the names given as the faculty show that the parties had no connection whatever with the institution and that their names were simply loaned or appropriated. One young man in one of the departments had permitted the use of his name as a member of the faculty, although he had never had any connection with the school. He also secured the name of another young man in the departments and of a friend of his of prominence in the far West, to be used as a member of the faculty. These people are even unknown to the parties running the school. One of the references given is Major Edwards who is personally known to the AGE. Inquiry was at once made of him about the school and the use of his name, and he replied that he knew of no such school. The following telegram was then sent to the banks in other cities which were given as references:

"Please wire information of the American Correspondence School."

The answer received up to the time of going to press was as follows: Each bank answering in the same way:

"Do not know any such school."

Inquiry was made of the National Capital Bank in this city also given as a reference, and the answer was that nothing whatever was known of such a school. The answer from the Bank of Washington to the same inquiry was, that one of the incorporators of the school was a depositor and that is all the connection they had with the school.

WARNING TO THE PUBLIC.

The AGE gives the following advice: "Never deal with persons or institutions that have not an

established reputation." Information has reached this office that there other parties even less responsible who are engaged in the same scheme in this city, and we hope in the next issue to give readers of the AGE the results of some further investigations. This should be warning enough to persons not to deal with individuals or institutions that have not an established reputation.

Here's a Chance for Inventors.

The following communication from a subscriber of the INVENTIVE AGE in far off India indicates that there is a universal demand for inventions possessing REAL merit. Inventors are apt to prize their own inventions too highly and many novelties that might, soon after the issuance of patent, be sold for a few hundred are held at a "few thousands" and as a result the inventor is doomed to disappointment. Patent Sharks invariably place a fictitious and extravagant value on inventions for the purpose of hypnotising their victims to the extent of securing "advance fees" from them. The following letter contains some information that may be taken advantage of by readers of the AGE.

Editor Inventive Age,
Washington, D. C.

SIR: I read your magazine regularly every month. As you invite your subscribers to write you for advice or business pointers I venture to write this. I know it for certain that there are hundreds of good, cheap and valuable patents issued in the United States which are never taken out in India. There is also a column open in your journal "New Patents For Sale" with a view of helping inventors. Some of the notices therein given are incomplete and a man, at such a distance as India, is quite unable to judge about the merits or demerits of an invention. Now should you happen to know of some recently patented novelties in the shape of toys, ink stands, pens or some novelties in electricity and which could be made in India cheap and sold at a reasonable profit, I will thank you highly for furnishing me with the list of such novelties. If these novelties are cheap and worth investing in I will perhaps purchase their patent rights for India, provided these are not already patented in England or Germany.

As such novelties are patented every week in your country, I think it will not be impossible for you to furnish me with the information desired. Even if you have in your mind some new machine or machines which by introducing in India might be of vast use from a financial economic point of view I will establish an agency for it in India.

I have corresponded with many of the inventors who advertise in the "New Patents for Sale" column in your journal, but I found their novelties too trivial or unsuitable to the India market or their prices for the India patents most foolish and unreasonable.

Yours faithfully,

KH. M. TATA.

Navsari, near Bombay, India.

A Mammoth Pumping Engine.

The largest pump in the world is at Lake Linden, Mich., and is owned and operated by the Calumet and Hecla Mining Company.

The Calumet and Hecla pump, named the Michigan, is a truly marvelous piece of mechanism. It can deliver 2,500,000 gallons of water every hour in the twenty-four without being crowded to its limit of capacity, and it will do the work with scarcely as much noise as is made by the operation of an old-style sewing machine. Outside the doors of the great building which houses it no sound is heard from within, and, standing beside the monster, upon the brink of the pit connected with the lake from which the water is taken, almost the only sound heard is the noise of the suction, as with every stroke more than a thousand gallons are lifted.

Briefly, it is a triple-expansion pumping engine with a capacity of 60,000,000 gallons, standing nearly fifty feet in height and requiring 1,500 horsepower for its operation. It has been proved by actual tests that the nominal capacity can be easily maintained for an indefinite time without injury or strain, and that if pushed to its full capacity the pump could handle approximately 75,000,000 gallons in twenty-four consecutive hours.

The duty of the pump is to furnish water for the great stamp mills of the Calumet and Hecla Company. The pump is housed in a special building near the shore of Torch Lake and below the mills, and its forces a steady stream of water to the upper portions of the mill, where, innumerable small jets play upon the great slime tables and jigs. Here the specific gravity of the fine particles of copper contained in the rock separate the mineral from worthless sand, and the size and force of the streams of water are so nicely regulated as to wash away the sand and yet carry with it the minimum of copper.—*Chicago Record.*

Very few people have an idea of the different kinds of merchandise an ocean steamship carries from the United States to foreign ports. The other day the Johnston Line steamer Vedamore loaded at the Locust Point docks of the Baltimore & Ohio at Baltimore sixty-six cars of lumber, four of starch, nineteen of oil-cake, six of provisions, one of organs, one of flour, twenty-two of tobacco, two of wire, three of sugar, thirteen of fresh meat, twenty of sheep, or 1699 head, forty-five of cattle, or 888 head, three of lead, one of copper, four of merchandise and 161 of grain, making a total of 371 carloads.—*Manufacturers' Record.*

DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Decisions of Commissioner.

Painter v. Hall: decided August 6, 1897.

INTERFERENCE—MOTION TO DISSOLVE—EX PARTE AND INTER PARTES QUESTION.

Rule 122 provides for motions to dissolve an interference on the ground of non-patentability, although this question had been favorably decided in an ex parte proceeding by the Examiner or one of the appellate tribunals. On a motion to dissolve the question is considered and decided de novo inter partes.

SAME—SAME—WEIGHT TO BE GIVEN TO DECISION OF EXAMINERS-IN-CHIEF.

In an inter partes case the Examiner is not precluded by the decision of the Examiners-in-Chief in an ex parte case, although said decision should be very persuasive, though not conclusive. To hold otherwise would be to deprive a party of his rights and benefits under Rule 122.

SAME—SAME—SAME.

The Primary Examiner may not, as a matter of course, ignore the decision of the higher tribunals simply because the question is before him in a proceeding inter partes, whereas it was before the appellate tribunal in a proceeding ex parte. It is not to be presumed nor would it be tolerable for a Primary Examiner to disregard the decision of the appellate tribunal where the decision of the higher tribunal is binding under the settled rules of decision.

SAME—SAME—SAME—SCOPE OF EXAMINER'S DECISION.

The Primary Examiner in his decision in an inter partes proceeding should state the reasons why in his opinion the decision of the higher tribunal in the ex parte case should not be followed in the inter partes proceeding.

SAME—SAME—QUESTION OF PATENTABILITY—RES ADJUDICATA.

The question of patentability decided ex parte cannot be said to be res adjudicata when raised inter partes. To make the matter res adjudicata, there must be concurrence of four conditions—identity in the thing sued for, of a cause of action, of the parties to the action, and of the quality in the persons. In the matter under consideration the identity of parties is lacking.

NOTE.—It is not intended by this decision to hold that the Primary Examiner may, as a matter of course, ignore the decision of the higher tribunals simply because the question is before him in a proceeding inter partes, whereas it was before the appellate tribunal in a proceeding ex parte. It is not to be presumed nor would it be tolerable for a Primary Examiner to disregard the decision of the appellate tribunal where the decision of the higher tribunal is binding under the settled rules of decision; but the case at bar is not such a case, and it is repeated that because in one case the question was presented ex parte and in the other inter partes the Examiner would be authorized to exercise his best judgment and decide accordingly; but in making his decision he should state the reasons why in his opinion the decision of the higher tribunal in the ex parte case should not be followed in the inter partes proceeding. Any abuse of the right to rehear the case which obviously degenerated into an offensive disregard of the decision of the higher tribunal would be met, not by denying the right, but by preventing the abuse.

Ex Parte Griffith; decided July 27, 1897.

FINAL FEES—CERTIFICATE OF DEPOSIT, TIME OF FORWARDING TO PATENT OFFICE.

Rule 207 of Rules of Practice, approved June 18, 1897, which requires that a certificate of deposit shall, in case of payment of a final fee, be deposited in the mail for transmission to the Patent Office within six months from the allowance of the application, should not be held to apply to certificates of deposit issued prior to the approval of the rule, provided they are forwarded to the Patent Office within a reasonable time after the publishing of said rule. Certificates forwarded more than thirty days after the date of this decision will not be received.

Ex Parte Haggard; decided July 9, 1897.

DESIGN—TWO DISTINCT ARTICLES—DIVISION.

Where applicant presents two distinct articles of manufacture—a cradle-supporting frame and a cradle-body—and claims them as such, held that the application should be restricted to one or the other of these two designs. (Ex parte Patitz, C. D. 1883, 101, and ex parte Brower, C. D. 1873, 151, followed.)

Decisions of the U. S. Courts.

U. S. Circuit Court of Appeals—Second Circuit. Dunbar *et al.* v Eastern Elevating Company *et al.* decided May 26, 1897. Appeal from the Circuit Court of the United States for the Northern District of New York.

DUNBAR—PORTABLE ELEVATOR—INVALID.

Reissued Letters Patent No. 10,521, granted September 16, 1884, to Robert Dunbar, for a portable elevator adapted for use, in connection with an ordinary grain-elevator, for unloading grain from vessels, held to be void for want of novelty, the improvement being within the range of ordinary mechanical skill. (76 O. G., 788, reversed.)

INVENTION—CONGREGATION OF DEVICES—NEW LOCATION—DOUBLE USE.

The circumstance that the same congregation of devices has never been assembled in a new location is not controlling and is often of little value in determining the question of patentable novelty. Their assemblage may be nothing but another instance of a double use, and when they require special adaptation to the new arrangement and occasion it still remains to inquire whether this has required invention.

A Non-Splittable Bicycle Wheel Rim.

A patent has been procured by Messrs Kydd & Mitchell, of Bowmanville, Ontario, through O'Meara & Co., patent attorneys, Washington, D. C.; which is beyond doubt the best bicycle wheel rim on the market and is far superior to all other laminated rims as the wood rim was to its metal one.

The rim is simplicity itself and consists of three layers of strong wood such as spruce, elm or ash, the grain of all three running circumferentially. The middle layer is veneered upon both sides with thin layer of wood, preferably walnut the grain of both, veneer layers running directly at right angles to the other layers. The entire rim is put into a former glued and then turned down, and the veneers of walnut produce two parallel bands or stripes on

each side of the rim which give it an ornamental appearance without painting or striping. It is impossible to split this rim as a wedge driven into a hole bored in the rim will be broken off before the rim is really a non-splittable rim and has already caught the market.

The patentees have already realized a fortune from the patent as the following letter will show:

BOWMANVILLE, ONT., July 12th, 1897.

Messrs. O'Meara & Co.,

Washington, D. C.,

DEAR SIR:—

Your favor of the 10th inst. received enclosing Letters Patent for our non-splittable wood rims. We desire to thank you for the attention you have given our interests in this matter.

We expect to place two more applications in your hands in a few week to cover our rim. We are also pleased to inform you that we have disposed of a one-third interest in our United States patent covering our non-splittable wood rim for the of \$25,000.

Kindly hurry forward our French and German patents, and with best respects, we remain,

Respectfully yours,

KYDD & MITCHELL.

J. G. Lorrain.

J. G. Lorrain, youngest son of the late Dr. W. B. Lorrain, M. D., a well-known physician and naturalist, and grandson of the late Dr. William Lorrain, M. A., LL. D., Head Master of Glasgow Grammar School, whose revisions of the texts of Vigil, Sallust, and Ovid are still well known to classical scholars.

Mr. Lorrain commenced the study of engineering as pupil of Mr. Edward Sang, C. E., of Edinburgh, after which he became a pupil of Prof. Fleeming Jenkin, F. R. S. Studied at Edinburgh University for two years, obtaining "passes with distinction" in mathematics, physics, and mechanics. In 1871 went to University College, London, and studied there for 18 months, then to the Royal School of Mines for three years, working chiefly at chemistry, mineralogy, mining, metallurgy, and geology. Afterwards went to Paris, and attended lectures at the College of France for two terms. Was then appointed chemist to the Oakbank Works, Midcalder, after which he started in private practice as an electrical engineer in Edinburgh. Mr. Lorrain erected the first telephone lines in Scotland, and in July, 1879, started the Manchester Telephonic Exchange, the first exchange formed in Europe—and soon afterwards the Liverpool Exchange. In November, 1879, Mr. Lorrain founded and was consulting engineer to the Scottish Telephonic Exchange, Limited (now merged into the National Telephone Company, Limited), for which Company he established the Edinburgh, Dundee, and Belfast Exchanges. In 1880 he founded and was consulting engineer to the Anglo-Indian Telephonic Company, Limited—the pioneer telephone Company in India—which Company soon afterwards amalgamated with the Bell and the Edison Syndicates to form the Oriental Telephone Company, Limited.

In 1881 Mr. Lorrain commenced private practice in Westminster as a consulting engineer, and between that year and 1887 specified and superintended the laying down of a considerable number of electric light installations in England and abroad, as well as several telephone exchanges on the Continent. Early in 1886 Mr. Lorrain, seeing the field open for a patent agent who was also a trained electrical engineer, commenced the study of Patent Law, and devoted the greater part of his time for two years to this, during which period he tabulated and abstracted every legal decision on the subject reported during the present century. Mr. Lorrain then commenced practice as a patent agent, and gradually gave up his engineering practice. He now devotes himself exclusively to patent work. He is a member of the Institution of Electrical Engineers, a member of the Institution of Mechanical Engineers, a Fellow of the Royal Physical Society of Edinburgh, a Fellow of the Chartered Institute of Patent Agents, a Member of the Societe Francaise de Physique, a Member of the Society of Chemical Industry, and a Member of the American Institute of Electrical Engineers, etc.

PATENTS

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H. B. WILLSON & CO.

PATENT LAWYERS,
Le Droit Bldg., WASHINGTON, D. C.

that the inventor may have full information before him in determining whether or not to proceed.

It is not a proper report in any case in which the invention is either on its face not valuable or is so nearly like the prior state of the art as to be of doubtful value.

This report was sent in a large number of cases in which it is admitted that no proper search had been made, was sent in a number of cases in which no search at all was made, and, as testified to by Gillis and not contradicted, was sent by personal direction of the respondent, John Wedderburn, in a number of cases in which references had been found by searchers. There being some delay in obtaining copies of the references in these cases, Wedderburn directed Gillis, in the presence of one Tabler, an employee of the respondents, who is not called as a witness, not to wait for these copies, but to send out favorable reports. (P. 209.)

The sending of a favorable report in the cases in which no proper search had been made is claimed by the respondents to have been a mistake for which they should not be held responsible. The sending of a favorable report in the cases in which no search had been made is also explained to have been a mistake for which the respondents should not be held responsible.

I can not agree with the respondents that they should not be held responsible for these reports. The respondents must be held fully responsible for the acts of their employees, and were bound by their agreement with their clients to have these searches made properly. Their failure to do so in these cases is gross and inexcusable negligence. The fault lay not so much with the searchers as with the system under which they worked. This system was of the respondents' creation, and they must be held directly and fully responsible for it. Inexperienced and incompetent searchers can not be trusted to make favorable reports, and no searchers, competent or otherwise, can be expected to make proper complete searches under pressure.

The sending of favorable reports in the cases as to which Gillis testified was nothing less than a deliberate fraud upon the clients. Without question it amounts to gross misconduct.

In those cases which were reported unfavorably by the searchers, that is, the cases in which anticipating references had been found, the respondents were accustomed up to December, 1896, as is admitted in the stipulation, to send a report in the following form:

We have received your letter of the —, inclosing — to cover the cost of a special search in the matter of your invention in —, sketch and description of which have also come to hand.

We have made a thorough examination of the records of the Patent Office and find as the nearest reference approaching your invention patent No. —, copy of which we herewith inclose.

Please remit \$20, to cover the first Government fee of \$15, and \$5, the cost of one sheet of official drawings, and upon receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution.

Your invention will be entered in competition for our prizes.

As soon as the application is safely filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to find a purchaser, should you desire us to sell the patent.

We await your instructions.

Very truly, yours,

JOHN WEDDERBURN & CO.

This letter was sent in many thousands of cases. Just how many of the twenty thousand or more cases, above referred to as the cases in which anticipating references were found, were searched prior to December, 1896, does not appear, but the number can not be less than from ten to fifteen thousand. In substantially all of these this, the usual, "unfavorable" report was used. It was used in one case, the Hershberger case, as late as January 2, 1897. (See p. 787.)

This letter is one which might with propriety be used in a case in which, while references somewhat near the invention had been found, nothing to anticipate the invention, nothing to prevent the granting of a patent for the invention had been found. In such a case the letter, though not as full and definite as it should be, would not be open to serious objection. In such a case the inventor might properly be encouraged to send on money for preparation of papers.

But this letter was not used in such cases. It was used in cases in which the reference, stated to be the "nearest reference approaching the invention," was a full and complete anticipation, and it was useless for the inventor to make application for patent. It is upon its face a deceptive and fraudulent report. Its deliberate and continued use by the respondents was in violation of the trust reposed in them by their clients, in violation of the express agreement entered into with their clients, in violation of honesty and common decency. The report in the cases in which it was sent is a false

and lying report. Its purpose is evident from its language. It was intended to deceive and mislead the client, to induce him to believe his invention patentable, notwithstanding the patent cited. It did deceive and mislead the client in many of the cases in which it was sent, as is clear from the fact that in these cases the client, notwithstanding the patent cited, sent on the money called for in this letter, and the respondents accepted this money and prepared and filed the applications in the face of the record showing that their own searchers had found anticipating references.

This so-called unfavorable report was so grossly misleading that these respondents' employees realized that its use would hurt the business (Gillis); that it would appear badly in any case that might come before the Office or court (p. 186), and about the 1st of January of the present year, after it had been in use for many months—nearly two years, in fact—it was changed to the form given on page 28 of the stipulation, badly misleading in a revised form given on page 27 of the stipulation, was adopted.

The sending of this so-called unfavorable report in these cases, followed up as it was by the acceptance of fees for the preparation of application papers without further explanation of the circumstances, is clearly gross misconduct.

It is perhaps an open question whether an attorney may properly prepare and file an application for patent for an invention which he knows to be unpatentable.

If the ground of this belief is such as amounts to an absolute certainty—as, for instance, in the Whitman case (Exhibit 62, in this case), in which the reference, patent to Cheney, No. 116,553, found by the respondents' search and reported to the applicant in the usual so-called "unfavorable report" letter, shows absolutely every feature of Whitman's invention—the attorney, in filing such an application, is false not only to his client, but is false in his duty toward this Office. That the attorney has a duty toward this Office as well as toward his client can not be questioned. He is to assist the Patent Office in doing justice toward his client and justice toward the public. He can not be a party to an attempt to secure a patent for what he knows to be old, an attempt to take from the public what has become public property, any more than he can permit the Office to refuse to his client the protection to which that client is under the law entitled.

There may be circumstances under which an attorney, even though he may believe—such belief not amounting to an absolute certainty—an invention to be unpatentable, may properly file an application for patent therefor, but this should never be done without the express direction of the client, given after the fact that the invention is unpatentable and the reasons why it is unpatentable have been fully and clearly laid before him by his attorney. To deceive the client as to the facts which negative patentability, or by failure to clearly and definitely state the facts to allow the client to deceive himself as to such facts, does not show that "highest good faith" which is recognized by the respondents as "necessary and required" (How to Get a Patent, p. 18) between the attorney and client. It is nothing less than gross misconduct.

The respondents make it a practice to send a silver medal to every applicant for a patent upon whose device, after search, a favorable report is made. They admit that in some cases where unfavorable reports had been made the medal was sent, but state that the order was to send medals only when favorable reports were made. (See stipulation, p. 32.)

This silver medal was in each case accompanied by the following letter:

We take pleasure in informing you that the board of awards has selected your invention for special merit, and your name will appear on our roll of honor for last month for the Wedderburn prize. Under the terms of our recent decision to recognize those inventors submitting especially meritorious devices, we have determined to present a sterling silver medal to each person entitled to a place upon the roll of honor.

We therefore send you by to-day's mail a sterling silver medal, accompanied by a United States Treasury certificate as to its standard fineness. It is of pure silver, and we regard its design as exceedingly artistic and effective.

Congratulating you upon the merit of your invention, which promises to be exceedingly profitable to you, we are, with kind regards,

Very truly, yours,

JOHN WEDDERBURN & CO.

Notwithstanding the order that medals were to be sent only in cases in which favorable reports had been made, the record shows that the silver medal and accompanying letter congratulating the inventor "on the merit of your invention, which promises to be exceedingly profitable to you," were sent in no less than ten of the comparatively few cases made exhibits in this case in which the so-called unfavorable report had been sent.

In seven of these cases, six of which are given on page 6 of the stipulation, the other being the Baker case, page 532 of the record, the medal and letter were sent from six to forty-eight days after the so-called unfavorable report citing an anticipating reference had been sent, and in nearly all of these cases before any communication had been received from the client. To this number should be added

the case of Whitman, in which the silver medal and letter were sent the day before the so-called unfavorable report citing an anticipating patent was sent. (Pp. 599 and 600, Exhibit 62.)

If in these cases the respondents, after sending the silver medal and letter, had no receipt of fees for the preparation of papers returned the fees, and written the client that the medal had been sent by mistake, and that by reason of an anticipating reference having been found they could not advise him to go on with the case, their assertion which they make now, that the medal was sent by mistake and contrary to their general order, would be accepted without question. But this was not the case. In every one of these cases the fees were sent on by the client so soon after the receipt of the medal and letter that it can not be doubted that its receipt was the means of inducing the client to proceed further with the case. In every one of these cases the respondents accepted the fees without hesitation and without explanation to the client. The fact that the respondents took advantage of the condition brought about by sending the silver medal and letter in these cases, and in so doing defrauded the client of the money sent on by him, in my opinion shows clearly that in these cases the medals and letters were sent to the clients with the full knowledge and approval of the respondents, for the purpose of inducing the payment of further fees in cases in which the so-called unfavorable report citing a reference had not secured a response from the client as quickly as was deemed desirable by the respondents.

In some of the cases in which an anticipating reference had been cited in the so-called unfavorable report letter the medal and its accompanying letter were not needed to secure a response from the client. (See cases of Robb, Gray and Fenn.) In such cases the fees sent on by the client were accepted by the respondents without hesitation or explanation and the preparation of application papers was proceeded with, notwithstanding that the record of the case showed that an anticipating reference had been found and cited to the client. In these cases the silver medal and letter were sent subsequent to the receipt of the first installment of fees. In substantially all the cases made exhibits in this case, whether the report of search was favorable or unfavorable, a silver medal and its accompanying letter were sent to the client at some time during the progress of the case, and in every instance after the client had been asked to send on money for some purpose, either preparation of application papers (cases of White and others, page 6 of stipulation), the second installment of the fees (cases of Sooker, Bulin, and others, page 6 of stipulation), money for foreign patents (cases of Purdy and others, page 7 of stipulation), for advertising the invention for sale (cases of Baum and others page 7 of stipulation), or for other purposes. In the cases of Haynes and Russell this silver medal and its accompanying letter were sent after part only of the second installment of fees had been sent and while the client was endeavoring to raise money for the balance of the fees.

There can be no doubt, in my opinion, that the silver medal and its accompanying letter were intended to be used and were used to stimulate to action clients who were less quick in sending fees than the respondents deemed desirable. It was used with great adroitness, and in many cases secured the result desired. It was an important element in the scheme of securing money from clients. The medal itself and the high-sounding phrases of the letter, the reference to the board of awards, and the assurances that the client's invention was of "special merit," "especially meritorious," which promises to be exceedingly profitable," etc., all coming from a corporation claiming to be patent attorneys of long experience and of the highest standing and integrity, and claiming to be indorsed by Senators and Representatives and others prominent in public life, can not but have had great weight with inventors. It was a powerful engine for mischief, and it was used without scruple by these respondents.

This letter accompanying the silver medal was false in its statement that a "board of awards" had selected the invention for special merit, etc. There was no board of awards which selected these inventions for special merit. There was no selection by anyone. The medals and letter were sent in all cases in which favorable report was made by the searchers, without regard to or consideration of their merit, and was, as has been above stated, sent in many cases in which an unfavorable report had been made by the searcher. (Stipulation, p. 32.)

Even if the silver medals had been sent only in those cases on which favorable report had been made by the respondents' searchers, and the respondents admit that it was their rule to send silver medals in all such cases, they are clearly guilty of grossly deceiving a large number of their clients. It is admitted that in two years the respondents sent out favorable reports in 11,000 cases. In two years these respondents filed applications in less than 4,000 of these cases, and of these applications less than 1,500 had been up to August 1, 1897, found

(Continued in Supplement.)

The Willard Water-Tube Marine Boiler.

Two illustrations herewith show the curious construction of a new type of water-tube marine boiler constructed by Chas. P. Willard & Co., Chicago, and which has been formally approved by the board of supervising inspectors of steam vessels. Careful study of the subject of marine boilers has led to the conclusion that a fundamental and serious objection to most marine pipe boilers now on the market is, that the releasing or disengaging surface is too far removed from the steam generating surface; that is steam that is generated in a horizontal pipe directly over the fire, is compelled to force its way through tortuous pipes often of small diameter, thirty to forty feet, before it can separate itself from the water. This, it is held, accounts, in a measure, for the sudden and violent fluctuations in the water level of some marine boilers, commonly known as foaming or priming—water at the top of the water-glass one minute and none in sight the next. The Willard boiler is built, after a thorough investigation and test, to avoid the objections in existing similar types. In the Willard boiler the

performed by exerting enormous pressure or by freezing air to an unusual degree, or by a combination of pressure with refrigeration. There are so many uses to which liquefied air can be put that scientists hardly know where its usefulness will end if it can be produced at a low rate of cost in commercial quantities. This a new method and machine has accomplished.

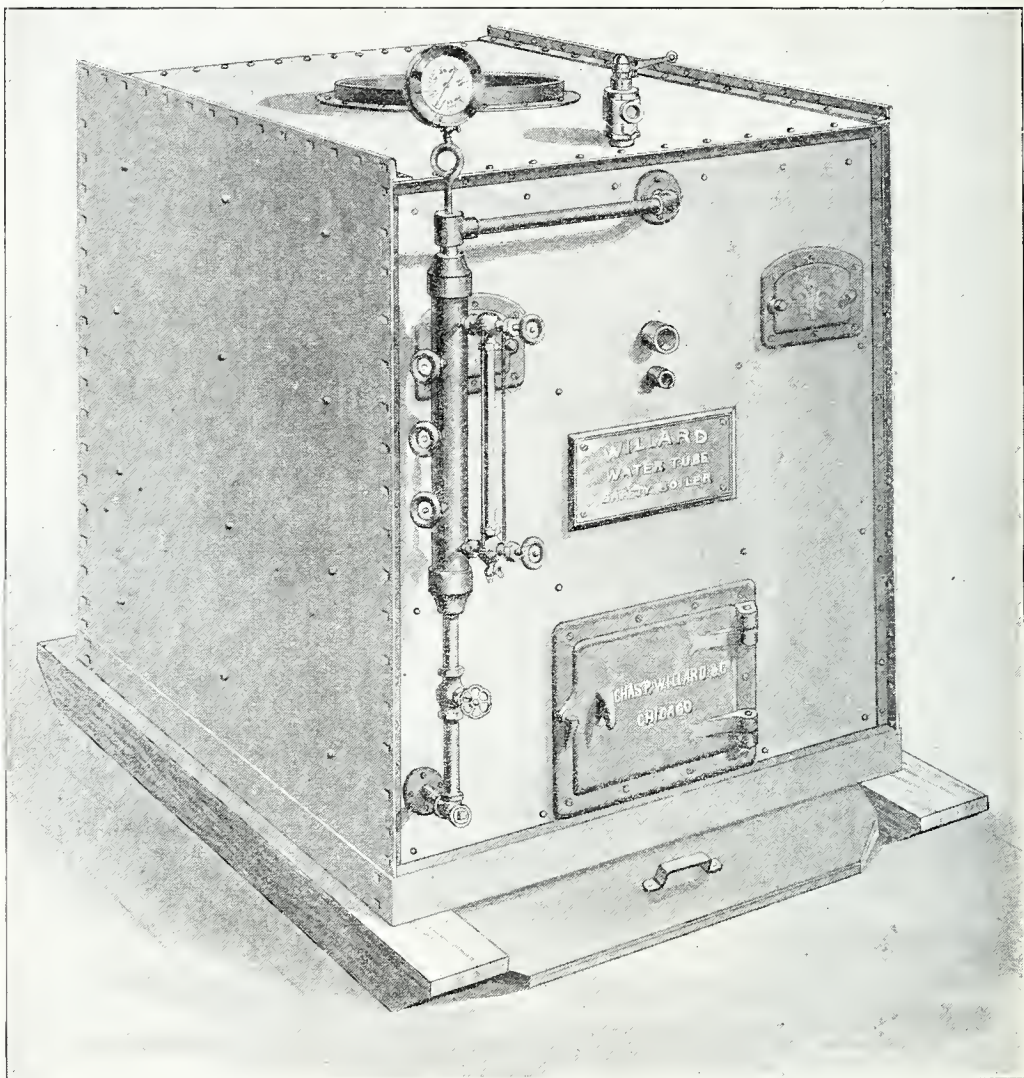
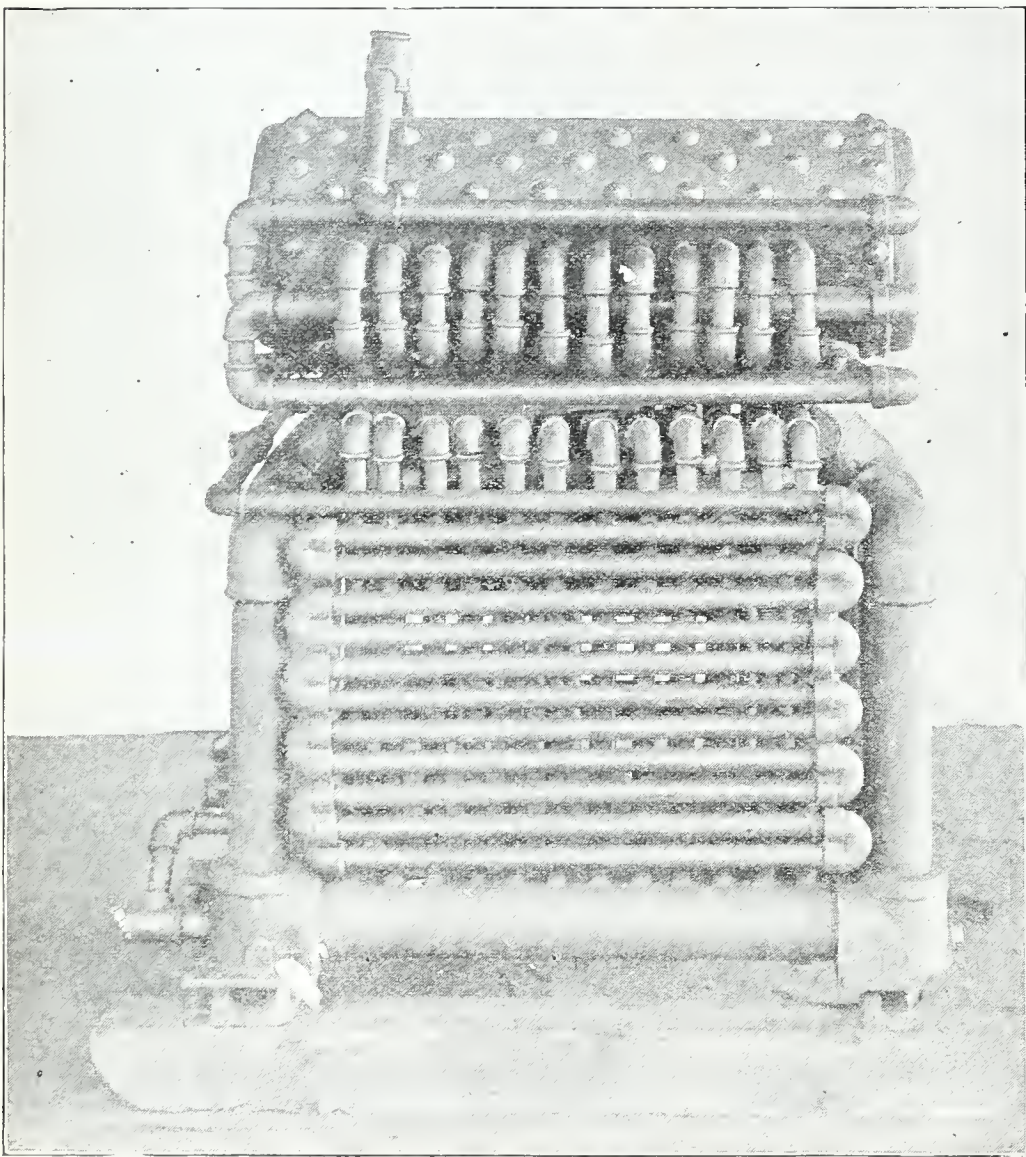
Among other advantages, air in the portable, cheap form of a liquid, as it passes back to its ordinary state, can be used for illuminating purposes by mixing its escaping gases with atmospheric air in certain definite proportions. Moreover, as a driving force in the way of detonators, or explosive material to drive engines, liquid air is obviously a power that can be, under given conditions, profitably applied.

Hitherto the classic example of a method to liquify air and obtain oxygen has been that invented by Beatty and Cailletet in 1877. With their machine, one began with carbonic-acid gas. By means of a pump this gas was condensed in a tube, round which lay water at 10° to keep the tube cool. The carbonic-acid gas, being reduced to a very low temperature, passed from the first tube into another

ingenious pieces of mechanism recently known; its chief feature is its economy of working, for it uses air to refrigerate air. After the pump has worked for a certain time, one turns a cock and the liquid air runs out at a temperature of 273° below zero.

In Professor Linde's method, an air pump of 5 horsepower condenses air to a pressure of 200 atmospheres; this air passes down a spiral tube and is let out in a chamber, causing great cold; then it rises and passes on the outside of the spiral tube, bathing it and thus cooling the new air that has been pumped into the tube to take its place. This cooled air follows on into the chamber, expands and again lowers its temperature, then passes on up around the same spiral tube; but as its temperature has become much lower, the new air in the tube is still further refrigerated. This circulating process goes on, until the new air pumped into the tube reaches the expansion chamber at a temperature of 273° below zero, when it drops into the chamber in the form of liquid. Thus the air, steadily cooled, is made to refrigerate the newly pumped air more and more, until the necessary degree of cold is attained.

Another idea, which may or may not be an im-



THE WILLARD NEW TYPE OF WATER-TUBE MARINE BOILER.

connection between the point where the steam is generated and the drum or steam space where it separates from the water, is very direct and comparatively short. Another peculiarity is the enlarged sizes of pipe, thus giving considerably greater amount of water in the boiler. The extra thick steel pipe, used in the Willard, has been drawn by means of a die (the same as wire is drawn) from the next size larger pipe. This entirely eliminates all traces of weld and renders the pipe practically seamless, and perfectly safe at a pressure of 800 to 1,000 pounds to the square inch. The use of fire-brick is done away with in the Willard, and the space at the rear of the boiler, in some boilers filled with fire-brick, in the Willard is nearly a solid wall of water-filled pipes connecting with manifolds over the fire, thus economizing the heat and reducing the loss by radiation. The entire casing of the boiler is lined with asbestos, which is both a non-conducting material and indestructible by fire. On the whole the Willard appears to be a very desirable boiler, especially for yachts and small craft.

Process of Liquifying Air.

Air in the cheap, portable form of a liquid rich in oxygen can be used for many purposes in manufactures and the trades. Of an interesting process recently discovered in Germany, Consul-General Chas. de Kay writes as follows:

Liquifying air is not a new thing; it has been

chamber with a tube in it, and in so doing fell to a lower temperature. Into this second tube was pumped at high pressure ethylene gas, which, in turn, fell to a low temperature, owing to the coldness of the carbonic-acid gas bathing the tube. The ethylene gas was then passed from the second tube into a third compartment and fell further in temperature in so doing. The third compartment had likewise a tube with an air pump attached. Into this third tube was pumped oxygen gas and from the ethylene gas bathing it the oxygen gas reached a temperature of 192° below zero. Finally, the oxygen was let out into a fourth compartment, in which was a fourth tube. The air pump attached to this fourth tube having filled it with condensed atmospheric air, the latter was so reduced in temperature that when it in turn was released from the tube, its cold was 273° below zero, and it appeared in the form of drops like water.

This product, which is called liquid or fluid air, has a milky appearance from the presence of some carbonic-acid gas, bubbles constantly, and from its enormous cold emits a smoke or cloud like the top of a very high mountain, and will only gradually resolve itself again into air when exposed to the ordinary atmosphere.

Fluid air costs about 10 marks (say \$2.25) for 5 cubic meters reduced. The new method is the invention of Professor Linde, of Munich. It produces the liquid for 10 pfennigs (say 2¼ cents) for 5 cubic meters, and it yields the product either as a gas or fluid, as one wishes. This is one of the most

provement, is to have the pump and all parts of the machine kept very low in temperature. The discovery of a cheap method may be of importance to American manufacturers.

Archie A. Morse, of La Crosse, Wis., is the inventor of an attachment to be put on any typewriter to work the carriage automatically, saving the time and the annoyance of the operator stopping to shift at the end of each line. The device was recently given a test at the patent office and it was demonstrated that a gain of fully 25 per cent in speed could be accomplished with it. It is something entirely new and will probably be a great success. Letters of patent have been applied for.

Out of the splendid donation of \$1,000,000 recently made by the Baroness de Hirsch in memory of her husband, to assist the poor Hebrews of New York City, \$250,000 will, by decision of the board of trustees of the Baron de Hirsch fund, be utilized in the construction and maintenance of the enlarged trade school which bears the founder's name.

A Manufacturers Index relating to the hardware, iron, steel, machinery and metal trades, a book of 150 pages, is sent out as a supplement to the Iron Age. The addresses and other information may be obtained in the advertising columns of the Iron Age.

DIRECTORY OF PATENT SOLICITORS.

Alphabetical list of practitioners of good standing before the Patent Office, and whose experience, skill, and professional integrity commends them to the favorable consideration of inventors, manufacturers, promoters and others. All are members of the Patent Law Association, of Washington, D. C., having for its object the application of honest and correct methods in Patent Law Procedure and the encouragement of legislation calculated to protect American inventors and dignify and elevate the Patent System.

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501 F st., Washington
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BROWNE, ARTHUR S.—
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Pacific Bld'g, Washington
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DODGE, WM. C.—
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607 Seventh st., Washington
DOWELL, JULIAN C.—
Wash. Loan & Trust Bld'g, Washington
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National Union Bld'g, Washington
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National Union Bld'g, Washington
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National Union Bld'g, Washington
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Wash. Loan & Trust Bld'g, Washington
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McGill Bld'g, Washington
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ROBERTSON, T. J. W.—
605 Seventh st., Washington
ROGERS, WALTER F.—
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SOMES, FRANK C.—
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SPEAR, ELLIS—
1003 F st., Washington
STERLING, HUGH M.—
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STOCKING, EDGAR B.—
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STURTEVANT, CHAS. L.—
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WHITAKER, JESSE H.—
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WHITTLESEY, GEORGE P.—
Atlantic Bld'g, Washington
WIGHT, LLOYD B.—
25 Grant Place, Washington
WILKINSON, ERNEST—
Atlantic Bld'g, Washington

DEPARTMENT NOTES.

Under this heading will appear the latest orders, amendments to the rules of practice before the Patent Office, list of disbarred attorneys, and bulletins of instruction issued from the Patent Office for the observance of patent attorneys and information of inventors.

Commissioners Report.

A summary of Commissioner Butterworth's annual report to the Secretary of the Interior, for the fiscal year ending Aug. 3, 1897.

APPLICATIONS AND CAVEATS RECEIVED.

Applications for letters patent.....	43,524
Applications for design patents.....	2,088
Applications for reissue patent.....	80
Applications for registration of trades-	
marks.....	1,964
Applications for registration of labels...	54
Applications for registration of prints...	37
Caveats.....	2,137
Total.....	49,884

PATENTS GRANTED AND TRADE-MARKS, LABEL, AND PRINTS REGISTERED.

Letters patent granted (including re-	
issues and designs).....	23,994
Trade-marks registered.....	1,790
Labels registered.....	3
Prints registered.....	32
Total.....	25,819

PATENTS WITHHELD AND PATENTS EXPIRED.

Letters patent withheld for non-payment	
of final fee.....	5,034
Letters patent expired.....	12,584

RECEIPTS AND EXPENDITURES.

Receipts from all sources.....	\$1,343,779.44
Expenditures (including printing	
and binding, stationery and con-	
tingent expenses) approximated.	1,026,644.39
Surplus.....	317,135.05

BALANCE IN THE TREASURY OF THE UNITED STATES ON ACCOUNT OF THE PATENT FUND.

June 30, 1896.....	\$4,776,479.18
June 30, 1897.....	317,135.05
Total.....	5,093,614.23

APPLICATIONS AWAITING ACTION.

Number of applications awaiting action on the part of the Office on July 1, 1897. 12,241

COMPARATIVE STATEMENT.

	Receipts.	Expenditures.
June 30, 1890.....	\$1,347,203.21	\$1,081,473.56
June 30, 1891.....	1,302,794.59	1,145,502.90
June 30, 1892.....	1,268,727.35	1,114,134.23
June 30, 1893.....	1,288,869.07	1,111,444.22
June 30, 1894.....	1,183,523.18	1,053,962.38
June 30, 1895.....	1,195,557.07	1,038,166.08
June 30, 1896.....	1,307,090.30	1,097,368.85
June 30, 1897.....	1,343,779.44	1,026,644.39

APPLICATIONS FOR PATENTS, INCLUDING RE-ISSUES, DESIGNS, TRADE-MARKS, LABELS, AND PRINTS.

June 30, 1890.....	43,810
June 30, 1891.....	43,676
June 30, 1892.....	43,544
June 30, 1893.....	43,589
June 30, 1894.....	39,206
June 30, 1895.....	41,014
June 30, 1896.....	45,645
June 30, 1897.....	47,747

APPLICATIONS AWAITING ACTION ON THE PART OF THE OFFICE.

June 30, 1890.....	6,585
June 30, 1891.....	8,911
June 30, 1892.....	9,447
June 30, 1893.....	8,283
June 30, 1894.....	7,076
June 30, 1895.....	4,927
June 30, 1896.....	8,443
June 30, 1897.....	12,241

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If inventors could peruse the pages of the assignment records of the United States patent office they would certainly feel that inventing pays.

Hardly a week passes that some one does not assign their patent rights, either in part or whole, for a good large sum. Many of the assignments recorded do not specify the consideration passed other than \$1, but in many other cases the sum paid is given.

Last week Herman Berghottz, of Ithaca, N. Y., sold his whole interest in five patents for Electrical Annunciators to the Electric Train Bulletin Company, Corporation of New Jersey, for the sum of \$500,000. This sum of itself is enough for one man to make in a life time and will no doubt prevent the wolf from entering the door.

All manufacturers who are readers of the INVENTIVE AGE are requested to mail one of their more recent catalogues to the American Catalogue Bureau, Cleveland, Ohio. It is the intention of this bureau to open free business libraries in several of the more important cities of this country and abroad, and by complying with the above request, our readers will not only benefit themselves, but assist in imparting some valuable information.

Communications to the Patent Office.

Rule 2. All letters and other communications intended for the office must be addressed to "the commissioner of patents." If addressed to any of the other officers, they will ordinarily be returned.

Rule 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies of abstracts must be sent to the office in separate letters.

Issue of September 7, 1897.

Patents.....	404—No. 589,400 to No. 589,803 inclusive.
Designs.....	16—No. 27,620 to No. 27,635 inclusive.
Trade-Marks.....	None.
Labels.....	None.
Prints.....	None.
Reissues.....	1—No. 11,628.
Total issue.....	421

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Whitehall Terminal, the new entrance into New York City, opened for business by the Baltimore and Ohio R. R. on Monday, July 19th, is the most convenient station to and from all parts of New York City and Brooklyn. This terminal is at South Ferry, east of Battery, and from it, under the same roof, direct connections are made with trains of the Second, Third, Sixth and Ninth Avenue Elevated Roads, Broadway, Columbus and Lexington Avenue Cable Lines; East and West Side Belt Lines of horse cars; South Ferry, Staten Island Ferry, Hamilton Avenue and Thirty-ninth Street (Brooklyn) Ferry. Ask for tickets to New York via B. & O. and save inconvenience. D. B. Martin, Mgr. Passenger Traffic, J. M. Schryver, General Passenger Agent.

A Complimentary Letter.

The INVENTIVE AGE quotes the following extract from a letter recently received which is self explanatory:

MALONE, N. Y., Sept., 11th, 1897.

Editor *Inventive Age*.

Washington, D. C.

DEAR SIR:

I enclose herewith \$1 for INVENTIVE AGE one year. I believe my subscription has nearly expired and I do not wish to lose one issue of such a valuable paper, which might very appropriately be termed the inventors adviser and friend.

Yours for truth and justice,
ERNEST E. LAWRENCE.

Many other letters of a similar nature are received daily.

B. & O. Summer Books.

The Baltimore & Ohio Railroad has just issued a very handsome book for summer travel, describing the mountain resorts, springs and baths located on and adjacent to its lines; also the various watering places on the Atlantic Coast. The routes for reaching them are set forth in a comprehensive and clear manner. The book is printed on fine paper, beautifully illustrated, and will prove of valuable assistance to parties contemplating a summer tour. Copies can be had by applying to various B. & O. agents or by sending 10 cents in stamps to cover postage to J. M. Schryver, General Passenger Agent, Baltimore, Md.

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The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library of the Patent Office:

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Official Certificates of Title.

The commissioner orders that all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently completed digest of irregular assignments.

Closure of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday and the patents of that issue will bear date as of the third Tuesday thereafter.

Powers of Attorney.

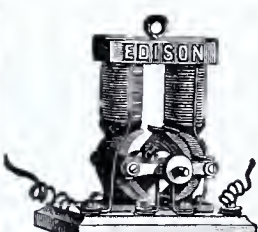
Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

The commissioner directs that hereafter all official certificates of title shall be based upon searches in the digests of regular assignments and also upon searches in the recently completed digest of irregular assignments.

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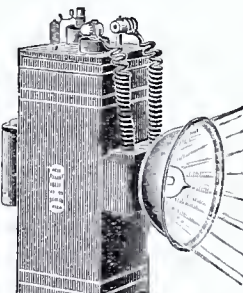
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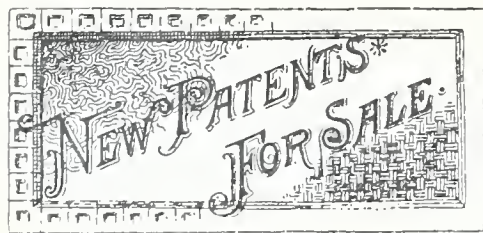
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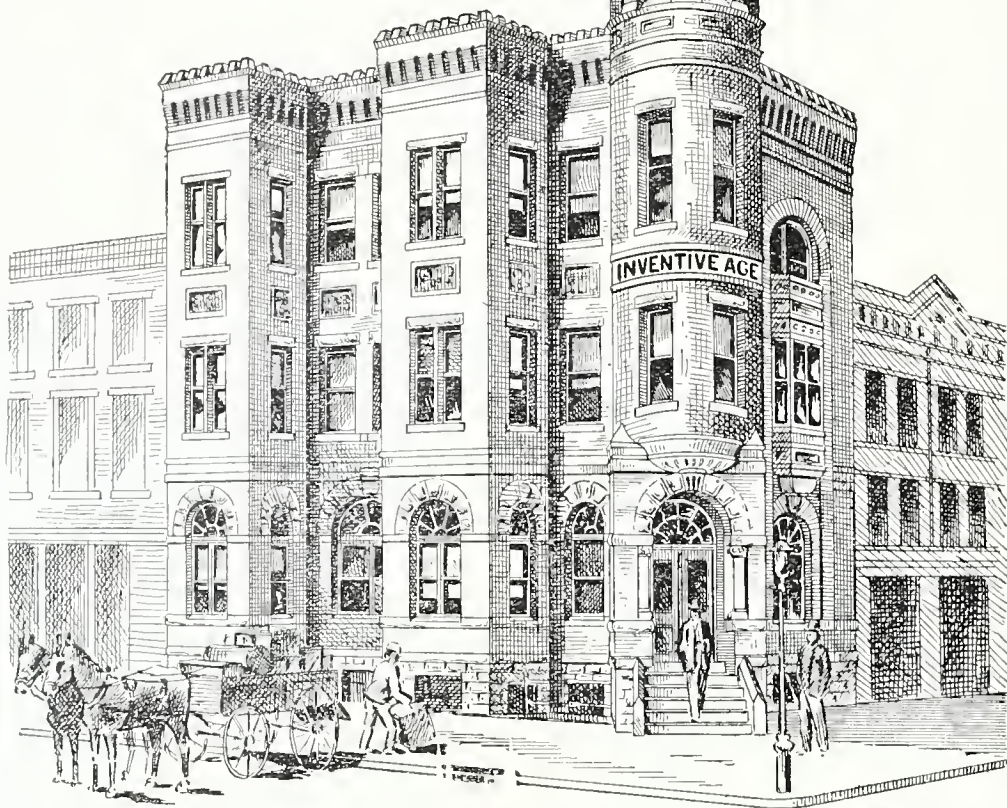
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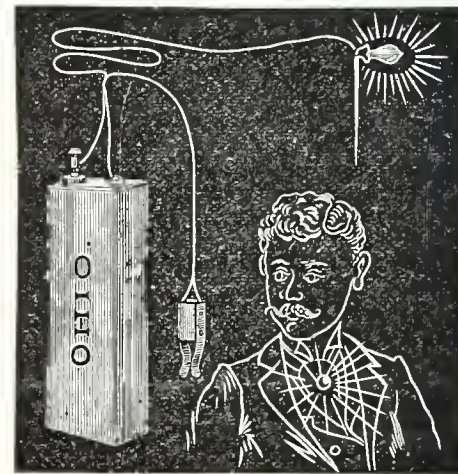
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(From 1873 to 1876 in the U. S. Patent Office as assistant examiner of interferences and law clerk; from 1876 to 1880 assistant and acting commissioner of patents. Since in active practice before the patent office and U. S. courts. Member of bar of U. S. Supreme Court.)

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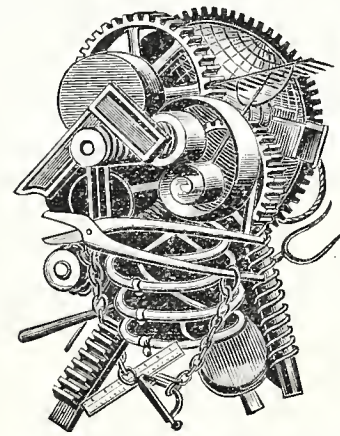
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A MONSTROUS FRAUD ON INVENTORS.

Text of Decision of Commissioner Butterworth in the Wedderburn Disbarment Case---A Severe Arraignment.

Order of Disbarment.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 1, 1897.

With the approval of the Secretary of the Interior, John Wedderburn and John Wedderburn & Co., of Washington, D. C., are hereby disbarred from practice before the United States Patent Office, pursuant to section 487 of the Revised Statutes.

BENJAMIN BUTTERWORTH,
Commissioner of Patents.

Approval of Secretary Bliss.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., September 30, 1897.

TO THE COMMISSIONER OF PATENTS.

SIR: I have examined with great care your decision and the report of Assistant Commissioner Greeley, in the John Wedderburn and John Wedderburn & Co., case, and herewith return them expressing my full approval of both. I direct that when the decision and report are printed, you transmit a copy of each to the Postmaster-General and that his attention be specially called to the use that has been made of the United States mails by John Wedderburn & Company.

Very respectfully,
C. N. BLISS,
Secretary.

Full Decision of Commissioner Butterworth.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 28, 1897.

THE SECRETARY OF THE INTERIOR.

SIR: Soon after I assumed the duties of Commissioner of Patents my attention was repeatedly called to the numerous complaints by applicants having business with the Office and by members of the bar to the methods and practices of John Wedderburn and John Wedderburn & Co.; and as I proceed to consider this matter I shall treat John Wedderburn and John Wedderburn & Co., as convertible terms, being, for all purposes of the investigation of which I shall speak and the conclusions I have reached, the same.

THE CHARGES.

It was charged that the said Wedderburn, by himself and through the corporation he had organized

under the name and style of John Wedderburn & Co., had adopted methods and practices as solicitor of patents that in manner and moral quality savored of a confidence game; that by a peculiar system of advertising and the use of misleading circulars, supplemented by correspondence which was at once deceptive and uncandid in form, and written with fraudulent intent, a vast number of citizens were defrauded, a branch of the public service was being demoralized, the practice of the law degraded, and the respect and confidence of the community in the dignity and integrity of the administration of the Patent Office undermined.

These were grave and serious charges, and should not be made or entertained without good cause shown, but if ascertained to be well founded the delinquents should be promptly disbarred and the public have full assurance that no department of the Government can be used as a means or agency for the purpose of conducting a confidence game or any other reprehensible money-getting scheme, no matter by what name the business may be called.

I made sufficient inquiry to convince me that a thorough and full investigation should be instituted to determine the exact truth and that such an investigation was demanded in the interest of the Patent Office and the public.

I personally reported the matter to you, with the suggestion that such investigation be promptly made and that such action be taken as might be found necessary to put an end to any reprehensible or fraudulent practices in conducting business before the Department, if such practices were found to exist.

You heartily approved of the recommendation, and directed that the investigation be made promptly and thoroughly and that nothing be left undone which could properly be done to render abuses or dishonest practices on the part of attorneys or others having business with the Bureau of Patents impossible in the future.

I assigned Mr. Chas. C. Stauffer, a member of the legal staff of this office, to formulate the charges and a rule against the respondents requiring them to show cause why they should not be disbarred for "gross misconduct." Mr. Stauffer and Mr. F. W. Winter, one of the principal examiners of this office, were charged with the duty of conducting the investigation.

I file herewith a copy of the charges and the rule to show cause which were served upon the respondents.

In a nut shell, the charges are that the respondents, as solicitors practicing before the Office, concocted a scheme and plans to impose on, deceive, and defraud unsuspecting and unwary persons throughout the country by a system of advertising

and correspondence which was false in suggestion, misleading in fact, and fraudulent in tendency and purpose; that the effect of their scheme and plans was to induce thousands, in fact tens of thousands of persons to believe that the Government of the United States would readily grant a patent on any improvement on articles or utensils in common use; that there was and is just now an active demand among capitalists and manufacturers for such inventions, and that they stood ready to purchase any one of a thousand of such inventions; the suggestion being that John Wedderburn & Co., had knowledge of this great demand and could successfully avail themselves of it to sell the patents of their clients, and that a fortune may be made out of some simple little thing; that the respondents, while calling attention to these alleged rare opportunities, felt anxious lest inventors and those who are struggling to be inventors may fall into the hands of unscrupulous patent sharks, or ignorant and dishonest solicitors, who are seeking employment; and the impression is created by the literature of respondents that while in soliciting employment they accept compensation for services, yet one of the motives, if not a controlling motive, with them was to protect and aid struggling inventors, and save them from being entrapped by capitivating and alluring advertisements which inspire delusive hopes and suggest promises of gain that can never be realized; and that while evincing in their publications this tearful solicitude for the honest, and well-meaning and wholly unsuspecting person who is so liable to be wronged by sharpers, the respondents themselves were in fact doing the very thing they so feelingly deprecate and condemn; and indeed issued the very character of literature and published the kind of advertisement they criticize and denounce; and have so successfully employed these means and agencies that more than 33,000 persons have been induced to establish the relation of clients of John Wedderburn & Co., and that of the 33,000 clients less than 1,600 applications have been allowed.

The charges in effect are that the respondents are using means and agencies that do more than suggest that they have been obtaining money by a system of false pretenses.

The respondents were given until the 26th of June to answer. They filed a joint and several answer in writing, a copy of which I also hand you herewith.

The Bar Association of Washington appointed a committee, consisting of Hon. E. M. Marble, late Commissioner of Patents, and ex-Assistant Commissioners of Patents Doolittle and Fisher, to represent the Bar Association in the investigation. Mr. Small, a member of the Washington bar, also assisted.

CONDUCT OF THE INVESTIGATION.

My assistant, Mr. Arthur P. Greeley, sat with me and aided in the conduct of the investigation. He heard the oral evidence, which was reported stenographically. After full conference and discussion with him I requested him to prepare a report of the findings and a synopsis of the evidence submitted in support thereof. The report is very full and clear.

The first point raised by counsel for the respondents was as to the nature and extent of the jurisdiction of the Commissioner of Patents to deal with the alleged delinquents in the proceeding to disbar.

It was urged that the relation of Wedderburn and Wedderburn & Co., to the Commissioner and to the Honorable Secretary of the Interior was that of a member of the bar to the judge upon the bench, and that the Department has the same jurisdiction to disbar and none other, and that the proceeding is

(Continued on page 148.)

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WASHINGTON—NEW YORK, OCT. 1897.

SPECIAL NOTICE.

Arrangements have been about completed for our New York headquarters and hereafter the AGE will be published simultaneously in Washington and New York, thus very materially broadening the field of this journal.

FEATURES FOR NEXT ISSUE.

The next issue of the INVENTIVE AGE will contain many interesting feature articles—among them one on "Procedure of the Official Examiner," by Frederick W. Winter, of the U. S. Patent Office; "For Inventors' Eyes," an article giving valuable hints to inventors, by Robt. Grimshaw; "The Miseries of Inventors," by Prof. Wm. Mathews; review of new inventions; proper ethics in patent soliciting; effect of Wedderburn disbarment on other practitioners; new devices for bicycles; decisions in patent cases, and other articles of interest. New subscribers will, if they desire, receive, free, the back numbers of the AGE containing the proceedings in the celebrated Wedderburn disbarment case, Assistant Commissioner Greeley's findings and full text of Commissioner Butterworth's able opinion.

THE American consul at Tokio finds that the wages in Japan have increased about 35 per cent in the last year. Japan is destined to become one of the most prosperous and enlightened nations on the globe.

COUNSEL for John Wedderburn & Co., made a strenuous effort to have Secretary Bliss rehear the case decided by him, but the Secretary took the position that the case having been fully considered, further consideration was unnecessary.

A GREAT strike is on in England which has now extended from the engineers to the allied industries in which nearly half a million men are employed. The result is paralyzing to the industry of Great Britain and the seriousness of the strike is now looked upon as a national calamity.

A READER wants to know in substance what Wedderburn's real defense was against the charges of misrepresentation and fraud preferred by the government. The defense in substance, astonishing as it may seem, was that the methods employed by Wedderburn to obtain business was none of the government's business. In other words two departments of the government—the post office department and the patent bureau of the interior department—could be used as agents and a medium through which

confiding inventors could be fleeced and the government must remain helpless.

Long Step Towards Patent Reform.

The full text of the decision of Commissioner Butterworth in the Wedderburn disbarment case appears in this issue to the exclusion of much other matter in relation to patent matters that will follow in succeeding numbers. The decision of the commissioner in this case is the most scathing rebuke to fraud and deception in patent practice ever administered by an official of the government and its effect will be far-reaching and beneficial alike to inventors and honest patent solicitors. It is indeed encouraging that the exigencies of the hour find in the present commissioner of patents a man of nerve and independence and in every way equal to the occasion. Through laxity of rules and improper conception of proper ethics in patent practice there has grown up, during the past few years, a most serious opposition to the whole patent system, and if the conditions as Commissioner Butterworth found them were allowed to continue and the abuses not abated, but a short period would elapse before the pent-up wrath of humbugged inventors everywhere would demonstrate itself in hostile legislation and the bringing into disrepute of a system that is now the greatest lever in national advancement and commercial supremacy. The practices of John Wedderburn were most pernicious and dangerous because of the agencies used to obtain business and silence investigation and criticism. By the boldest and most unique plan it is possible for a clever mind to conceive, hundreds and thousands of newspapers throughout the country were taken into partnership with a systematic scheme to enrich a conscienceless adventurer in patent practice at the expense of their readers, and without, in the long run, even pecuniary remuneration to themselves. With a stifled press, unrestricted use of the mails and laxity in the patent bureau it is not so strange, after all, that a man could build up a patent business aggregating over \$200,000 a year in gross receipts, and employ upwards of 200 clerks. But what a sudden collapse when the searchlight of investigation and the application of stringent rules in the patent office were invoked. Commissioner Butterworth and his co-workers, the reputable patent attorneys of Washington, have performed a meritorious service to the government that extends beyond mere benefit to inventors. A precedent for correct methods in dealing with, or through any bureau or system of the government has been established that will be emulated by succeeding administrations.

A WELL known patent attorney contributes an article in this number in defense of the "patent or no pay" system, which has been generally considered by the patent profession as "unprofessional" and of questionable benefit to the inventor. The defender of the "patent or no pay" system in this instance puts it fairly when he says that "after all it depends entirely on the man whether his client will get straightforward advice and faithful service, and not upon whether the attorney receives his pay before or after he has done his work." It is a matter of professional ethics merely in which the weight of opinion in and out of the bar association is opposed to the "contingent fee" plan, on the theory that in order to make certain the fee the "contingency" must be overcome at all hazards—even to the extent of obtaining for the inventor an allowance of a few claims of minor importance, and thus securing a patent of little value, but sufficient to receive the "contingent" fee. Of course if the attorney is honest, faithful and conscientious it matters not whether he practices one system or the other, but all are not honest. The other side of this question will be covered in an article to appear in our next issue.

OUR London contemporary, "Invention," records the fact that the number of patents being applied for in that country is again on the increase, aggregating 580 for the week ending Sept. 25, against 524 for the week previous. Of this number the majority, 118, of the specifications relate to cycles and

accessories and 14 relate to motor cars. Among the important inventions noted is an improved process for impregnating woolen fabrics intended for keeping the human body at an equal temperature.

THERE have been a few instances where examiners and other employes of the government, possessing secret information regarding pending applications for patents have directly or indirectly engaged in the business of patent soliciting. The possible evils to follow such practices have impressed themselves upon Commissioner Butterworth and he has issued an order to the effect that "all applications for patents now pending before the office filed by employes of the patent office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned." The views of the commissioner upon section 480 of the Revised Statutes bearing on this subject are expressed in his decision in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

THE dangers of Acetylene gas have been overcome to such an extent the new luminant is being used quite generally throughout the country. A new company with a capital of \$1,000,000 has been formed for the purpose of furnishing Acetylene gas to consumers in Chicago and in London, England, the new gas is also in considerable favor.

ONE of the most important series of patents ever granted has just been issued to Milo G. Kellogg, of Chicago, Ill., on multiple switchboards. There are 125 patents covering the ideas of the inventor, on which the government fees alone amount to over \$4,000 and the attorney's fees probably as much more.

Notice Sent Wedderburn's Clients.

The following notice has been sent by the commissioner to each of the clients of John Wedderburn & Co:

"John Wedderburn, to whom a power of attorney was given in this case, was, on October 1, 1897, together with John Wedderburn & Co. disbarred from practice for gross misconduct, such misconduct consisting in systematically deceiving and defrauding clients. Neither he nor any of his employees or agents will be permitted to have access to this application or take any further action therein.

You are entitled under the Rules of Practice to prosecute this application yourself; or, if you think best, you can appoint another attorney. The office can not recommend or otherwise aid in the selection of an attorney. Should you decide to prosecute the application yourself, any letter you send to this office should be addressed to the Commissioner of Patents, and should state serial number, date of filing, and title of the application.

Until notice is received of the appointment of an attorney, all communications will be addressed to you.

Copies of the Rules of Practice will be furnished upon application.

From the following statement of the condition of the application you will be able to judge whether or not it is advisable for you to prosecute the application further or to pay further fees to an attorney for its prosecution."

BENJAMIN BUTTERWORTH,
Commissioner of Patents.

Site for Government Armor Plate.

The Naval Board will shortly make a tour of inspection of sites suggested for the location of a government plant for the manufacture of armor plate and several locations in the south will be visited. It has been made to appear that there exists a smaller percentage of phosphorus in the ores about Elizabethton, than in any Bessemer ores found in the United States and the board were instructed by Secretary Long to include Elizabethton in their itinerary.

Good Foreign Contracts for America.

The three European cities of Dublin, Ireland, and Barcelona, and Madrid, Spain, are to be equipped with trolley systems. The contract has just been closed with the British Thomson-Houston Company of London. All the electrical and steam apparatus on the Dublin order and all the electrical apparatus on the Barcelona and Madrid lines will be of American manufacture, the electrical apparatus being manufactured in Schenectady, N. Y., and the engine at Milwaukee.

The Secretary of War has appointed Major Chas. W. Raymond of the United States Engineer Corps, Alfred Noble of Chicago and George Y. Wisner of Detroit as a special board to make a survey and examination, including estimates of cost, of deep water ways between the great lakes and the Atlantic tide waters.

AN ABLE ARGUMENT.

Extracts from Brief of Attorney Wm. Small in Disbarment Proceedings for Gross Misconduct against John Wedderburn, and John Wedderburn & Co.

Before Hon. Benj. Butterworth, Commissioner of Patents.

The subject matter of this case being of great interest to all present or prospective inventors it may not be inappropriate to quote at the outset the following extract from an opinion of one of your Honor's predecessors, the able and eloquent Judge Holt, as showing the esteem and regard as well as the consideration to which that most deserving class of people are entitled.

"Inventors and other men of high creative genius have ever been distinguished for a total want of what is called business habits. Completely engrossed by the same favorite theory and living in the dazzling dreams of their own imagination, they scorn the counsels and restraints of worldly thrift, and fling from them the petty cares of commerce as the lion shakes the stinging insect from his mane.

All that is glorious in our past, or hopeful in our future, is indissolubly linked with that cause of human progress of which inventors are the *preux chevaliers*. It is no poetical translation of the abiding sentiment of the country to say that they are the true jewels of the nation to which they belong, and that solicitude for the protection of their rights and interests should find a place in every throb of the national heart. Sadly helpless as a class, and offering in the glittering creations of their own genius, the strongest temptations to unscrupulous cupidity, they of all men have most need of the shelter of the public law, while, in view of their philanthropic labors, they are of all men most entitled to claim it. The schemes of the politicians and the statesmen may survive the purposes of the hour, and the teaching of the moralist may remain with the generation to which they are addressed, but all these must pass away, while the efforts of the inventor's genius will endure as imperishable memorials, and, surviving the wreck of creeds and systems, alike of politics, religion, and philosophy, will diffuse their blessings to all lands and throughout all ages. (Com. J. Holt in Chas. Goodyear case, June 15, 1858.)"

It is scarcely necessary to suggest that the honor of presiding over a Bureau so closely identified with the deserving class of people thus so eloquently referred to by Judge Holt, requires qualifications of the highest order of which steadfast devotion to duty, integrity and moral courage are not the least indispensable, provided always the fortunate possessor of these virtues brings them into active requisition. The good such a man may do in this position is incalculable, if he is not interfered with in the discharge of his duties, but in case he should be, and especially if his efforts to maintain and preserve the integrity of the patent system are frustrated or even opposed by higher authority, then, and in that case I can imagine no more galling and intolerable position to a man imbued with the determination to do right, and certainly no friend of his would wish to see him thus situated. It would of course be different to a man who concerned himself only about his salary, and who measured the success of his administration by revenue comparisons.

It is also a great honor as well as a proud distinction to be worthy and well qualified to represent inventors as agent or attorney, and, as showing that the respondents fully realized and attached great importance thereto, I invite your special attention to the following extract from their copyrighted pamphlet.

Mr. Small here read extracts from said pamphlet entitled: "How to Get a Patent."

In the case at bar proceedings were instituted against respondents under Section 487 R. S. which reads as follows:

"For gross misconduct the Commissioner of Patents may refuse to recognize any person as a patent-agent, either generally or in any particular case; but the reasons for such refusal shall be duly recorded and be subject to the approval of the Secretary of the Interior."

June 14th, 1897, formal charges were preferred by the Commissioner of Patents against the respondents under said Section for gross misconduct in connection with the management of their patent business, said charges, as therein indicated, including Malfeasance, Misfeasance, Nonfeasance, Misrepresentation, Deceit, Forgery, Fraud, False Pretenses, Suggestio Falsi, Suppressio Veri, and generally pursuing such a course of conduct in the management of their so-called patent business as was calculated to bring scandal and

reproach upon the administration of the patent system; and a rule was made on them "to show cause on or before the 26th day of June, 1897, at 10 a. m. why the Commissioner of Patents should not refuse generally to recognize said corporation, or any of the members thereof, or you, the said John Wedderburn, as patent-agent or agents in accordance with the statute made and provided."

All of these charges, with the exception of the charge of Forgery, we expect to show have been fully established by the evidence taken herein.

July 2nd, 1897, respondents, (after applying for and obtaining further time in which to make answer) made answer to said complaint, and, denying "that they have been guilty of gross misconduct" and averring "that none of the charges preferred against them, or either of them, which are now being answered, constitute gross misconduct, as that term is used in Section 487 R. S. * pray that the rule to show cause be discharged and vacated, and that they be hence dismissed"—in other words the plea interposed by them amounts to the general issue—not guilty.

It is submitted that in the testimony which was taken in this case before Hon. A. P. Greeley, Assistant Commissioner of Patents, commencing July 24th, 1897, and ended August 14th, 1897, the following material facts, among others, were fully established.

STATEMENT.

That through a charter, granted by the State of Virginia, under date of March 25, 1895, on application made therefor by John Wedderburn, Arthur L. Hughes, William L. Ford, William M. Crouse and Thomas B. Crittenden, the respondent Company was formed and organized with the several parties named, *supra*, as the officers thereof; that, as set forth in its charter, the "chief business" of said Company "is to be the prosecution of claims against the United States, of patents and of other business before the Courts, the Departments and Congress;" and that "the capital stock of the said Company is to be \$100,000, divided into 100,000 shares of the value of \$1 each, the said stock to be non assessable; the stock is to be of two classes, common and preferred, the common stock to be \$10,000 and the holders thereof entitled to vote and participate in the management of the affairs of the Company, the preferred stock to be \$90,000, and the holders thereof not entitled to vote or participate in the management of the Company. The Company is also authorized to issue bonds."

In an advertisement which appeared in the Washington Post, March, 1897, it was stated:

"3,000 newspapers all of which are stock-holders and whose vital interest it is not only to spread abroad the fame of the firm but also guarantee to the public the skill and integrity of its management."

That among the means employed by said Company to promote its business interests were; (1) The issuance of its preferred stock to newspaper publishers for and in consideration of various advertising notices of which the following is a sample:

"Wanted—An idea.—Who can think of some simple thing to patent? Protect your ideas; they may bring you wealth. Write John Wedderburn & Co., 618 F street, N. W., Washington, D. C., and get their \$1800 prize offer and list of inventions wanted."

Comment: Besides the erroneous impression sought to be conveyed by the above advertisement in regard to the patentability of ideas, as such, the evidence taken in this case proves absolutely and conclusively the falsity of the two following statements contained therein—(1) that John Wedderburn & Co., have ever been patent attorneys; and (2) that they ever awarded an \$1800 prize; and, as the obvious purpose of uttering and publishing said false statements was to induce people to write them (as they would other attorneys) for information and advice in regard to how they should protect their ideas so that they might "bring them wealth," and especially how they might secure the \$1800 prize, the falsehoods thus "extensively advertised" of material facts, taken in connection with their manifest object to mislead and deceive them, it is submitted constitute of themselves gross misconduct within the meaning of the statute.

Falsus in uno falsus in omnibus. Fraus est celare fraudem. Fraus laet in generalibus.

(2) The publication and extensive circulation of the pamphlets, circulars, and leaflets, all here of record, entitled respectively:

"How to get a patent" "Have you an idea? 100 inventions wanted." "A new department by John Wedderburn & Co." "A special search service." "Prizes on patents. \$1800 given away to encourage inventors to patent all their ideas."

(Mr. Small here read extracts from these pamphlets, and referring to their claims and pretensions for skill, honesty, etc., remarked:

Whether this strong self-laudatory recommendation accords with professional ethics or with the following definition will be for your Honor to decide after an examination of the facts herein.

"Charlatan.—A mountebank, quack, or empiric, and hence any one who makes loud pretensions to

knowledge or skill that he does not possess. The medical (patent attorney) charlatan no longer appears on a stage in the guise of Doctor Ironheart but as a finely dressed gentleman, receiving grateful acknowledgments through the newspapers, and publishing or claiming to be the author and publisher of standard medical (patent) books, etc.

The above advertising literature, supplemented by newspaper advertisements, "write-ups," or biographical sketches, and testimonials, published in the National Recorder and other papers, also by numerous monthly notices of prizes, awarded by a "Special Board of Awards," comprised of prominent men, constituted the means employed by the respondents to call attention to their business, and to secure clients; and in view thereof, it is needless to suggest that in securing their charter and in the management of their business, money making has been their sole object. *Causa causae est causali.* That it was an eleemosynary, or philanthropic, institution as, in effect is suggested by the respondents when they state that the medals and prizes were for the purpose of stimulating the inventive faculties of the general public, is not only disproved by the facts and circumstances herein of record, but is as wide of the truth as it would be to claim that John Wedderburn & Co., were "thorough, skillful, and honest attorneys," and that all other Washington attorneys, were "robbers, shysters, thieves and every way disreputable and unreliable characters," and I will not, therefore, take up your time or insult your intelligence by discussing such a grotesquely absurd and wholly groundless suggestion.

EFFECTS AND CONSEQUENCES.

AS DISCLOSED BY THE TESTIMONY TAKEN HEREIN.

That in consequence of the suggestions, stimulating incentives, and inducements contained in said advertisements and advertising literature, said Company, within two years from the time of its organization, from March 3rd, 1895, to March 3rd, 1897, made upwards of 33,000 searches or preliminary examinations for their clients, and that of this number, about 3,800, in their opinion, contained patentable matter, and applications therefor were filed in the Patent Office; that they received many orders for advertising the sale of devices (not yet patented) and also "write-ups" or biographical sketches published in their advertising medium, the National Recorder; and that from these various sources, it is estimated, the respondents have received within the time specified not less than half a million dollars. It is our contention that all this enormous business was obtained through misrepresentation, deceit, and false pretenses.

DETAILS, SAMPLE CASES.

I have now to call your Honor's attention to the details of a few of the numerous cases included in the exhibits, and which are fair samples of the general manner in which respondents conducted their so-called business.

TUTTLE CASE.

In the case of J. Edgar Tuttle, for Nut Lock, filed April 18 1897, and which the respondents admit in their answer, page 26, "that a negligent search was made" by them, and that "in their opinion the device is devoid of patentable novelty" it appears that notwithstanding this express admission of negligence the respondents wrote Mr. Tuttle as follows:

June 22, 1896.—We have made a thorough examination of the records of the Patent Office and failed to find any reference approaching your invention sufficiently near to prevent you from securing a patent. We therefore have to report that in our opinion a patent can be obtained.

Please remit \$20 to cover the first Government fee of \$15 and \$5 the cost of one sheet of official drawings.

There is no doubt but that your invention is a very valuable one, and that good money could be made out of the same if properly handled.

Your invention will be entered in competition for our prizes.

June 27, 1896.—Acknowledging receipt of \$20 to cover the preliminary fees; stating they would "immediately prepare the application paper to broadly cover the device," and also stating their charges for selling patents.

July 7, 1896.—Acknowledging receipt of application "properly signed and executed and \$25, our fee for preparing and prosecuting the case."

July 8, 1896.—Letter enclosing Silver Medal, the "Board of Award" having "selected your invention for special merit and your name will appear on our Roll of Honor for last month for the Wedderburn Prize."

Same date, probably. Letter from National Recorder suggesting that \$5 be sent for a write-up, etc.

Nov. 16, 1896.—Suggesting the advisability of taking out foreign patents. (Although case had already been rejected Aug. 10, 1896, and again on Oct. 23, 1896.)

Dec. 1, 1896.—Declining to advance money to cover cost of advertising.

(Case rejected again Feb. 15, 1897.)

April 10, 1897.—Tuttle advised of their inability to "overcome certain objections raised by the Examiners."

I submit that in view of the letters thus written Tuttle by the respondents, the statement contained in their answer (*supra*) is neither an honest nor a truthful one.

FOSSETT CASE.

Nov. 23, 1896.—Acknowledging receipt "of \$5 to cover cost of a special search in the matter of your invention on envelopes, stating" "there is no doubt that your invention is a very valuable one," and that it would "be entitled in competition for our prizes."

Dec. 3, 1896.—Acknowledging receipt of \$20 to cover the first Government fee and one sheet of drawings.

Dec. 17, 1896.—Advising "the advisability of taking out patent in Canada and Great Britain," and this before application filed in U. S. Patent Office, which was done Jan. 7, 1897.

Dec. 17, 1896.—Informing applicant that "the Board of Awards has selected your invention for special merit and your name will appear on our Roll of Honor for the Wedderburn Prize," also enclosing Silver Medal.

Dec. 31, 1896.—Letter from National Recorder acknowledging receipt of \$5 for "write up."

Jan. 22, 1897.—Acknowledging receipt of "\$5. to be applied as part payment of fees in the matter of your application for selling patent in Great Britain and Canada on your Envelope."

(Case rejected Feb. 6, 1897.)

Feb. 11, 1897.—Acknowledging receipt of \$45, balance due on British and Canadian patent applications and stating also that he is now at liberty to manufacture and sell his invention. Case finally rejected May 12, 1897. Result: Loss to applicant of \$140, less the "exceedingly artistic and effective Silver Medal," worth 20 cents.

PECK CASE.

Sept. 23, 1896.—Letter suggesting that a sketch of invention be sent. "Notice! total number of patents procured last week 515, 146 were sold," stamped in large red ink letters thereon.

Oct. 1, 1896(?).—Referring to above and to fact that it had not been replied to, also stating that "we should be most happy to advise you without charge either in a personal interview or by mail as to the patentability and salability of any device which you may have in mind."

Nov. 6, 1896.—Acknowledging receipt of \$5 to cover the cost of a special search, and stating that "after a thorough examination of the records of the Patent Office we fail to find any reference approaching your invention sufficiently near," etc., also that "there is no doubt your invention is a very valuable one and that good money could be made out of it if the same is properly handled."

Nov. 12, 1896.—Suggesting that "if unable yourself to send the necessary fees with which to take out a patent we suggest that you interest some one in your invention to whom you can personally explain its merits and agree to assign to such person an interest, etc."

Nov. 17, 1896.—Acknowledging receipt of \$20 "to cover the preliminary fees in the matter of your application for patent on your invention."

Nov. 20, 1896.—Stating that "while the main points of this invention are very clear, there are still several minor or detail points not sufficiently described, etc."

Dec. 5, 1896.—Acknowledging receipt of "further description of your invention, etc."

Dec. 11, 1896.—Forwarding application for signature and to return same executed with \$25.

Dec. 17, 1896.—Silver Medal and Roll of Honor letter.

No date.—National Recorder letter in regard to "write-up" and advertising invention for sale.

Dec. 22, 1896.—Acknowledging receipt of executed application and \$25.

Dec. 29, 1896.—National Recorder acknowledging receipt of \$5 for "write-up."

Application filed Jan. 9, 1897. Rejected Feb. 24, 1897.

In regard to the case last referred to I desire to state that the applicant, Miss Laura A. Peck, of Geneva, N. Y., a refined and accomplished young lady, is a graduate of one of the New York Normal Schools, and a teacher by profession.

When her suspicions in regard to the respondents were aroused she came to Washington, and finding, after diligent inquiries, these suspicions fully confirmed, she addressed the respondents several letters which are here of record and to which your Honor's special attention is invited.

It is also claimed by the respondents that she issued and circulated the following circular letter for which

a libel suit claiming \$50,000 has been instituted against her by the respondent Company:

IMPORTANT CAUTION.

BEWARE OF THE PRIZE AND MEDAL AWARDING "PATENT ATTORNEYS" AS THEY ARE NOT BENEFACTORS OR PHILANTHROPISTS BUT SWINDLING CONFIDENCE GAME SCOUNDRELS OF THE WORST AND MOST DANGEROUS TYPE.

Geneva, N. Y., May 10, 1897.

DEAR SIR:—

If like my unfortunate self you or any of your friends have been victimized by the pretended patent attorney companies that for some time past have been deceiving and defrauding a large portion of the people of the country through their confidence-game literature, I would respectfully suggest that you or they at once write out a brief statement of the facts in the particular case and forward the same, together with all letters, circulars, pamphlets, etc., which may have been received from any of said companies to Hon. Benj. Butterworth, Commissioner of Patents, Washington, D. C.; or Hon. John L. Thomas, Asst. Atty. General, P. O. Department, Washington, D. C.; or William Small, Esq., Attorney-at-law, Washington, D. C.—the latter being the retained counsel of the reputable patent attorneys in the official investigation now being made by the Interior and Post Office Departments of the methods and practices of the Companies in question.

I am prompted to make this suggestion, after a personal visit to the United States Patent Office at Washington and ascertainment of the facts, solely through what I regard as a moral public duty; and I will take pleasure in responding to any inquiries which may be addressed to me on the subject.

Briefly stated the principal baits or decoys used by these swindling concerns are: (1) The advertisements for inventions; (2) the lists of devices for which patents are wanted, nine-tenths of them, at least, having been patented long ago; (3) the stereotyped search reports, stating in effect that the device is patentable and valuable; (4) the worse than worthless medals of honor and certificates of patentability; (5) the chance to win a money prize before the particular device thus honored(?) is found to be patentable, the award being made not by the Patent Office Officials, but by a special Board made up of political, business and social friends, who could not, in one evening, as claimed, examine one-tenth of the inventions entitled to compete therefor.

Through these and other confidence-game methods and practices, and taking advantage of supposed defects in the postal laws, the concerns in question have succeeded in deceiving and defrauding many thousands of poor people throughout the country, and they lay the flattering unction to their "soulless souls" that they can continue their nefarious business indefinitely and with impunity.

I also strongly urge that you write your Senators and Representatives in regard to this important matter suggesting the prompt enactment of a law to remedy the evils herein complained of, as contemplated by Bill No. 1057, which was introduced in the U. S. Senate on March 22d, 1897, by Senator Haysborough and which was, without objection, read twice and referred to the Committee on Patents.

Yours very respectfully,

LAURA A. PECK.

No. 140 North Genesee St., Geneva, N. Y.

Assuming that Miss Peck did issue and circulate said circular letter, I submit to your Honor that she did a very brave and noble act, and one which entitles her to the thanks and gratitude not only of all patent attorneys but also every right thinking man and woman throughout the country, and I am sure that even the distinguished gentleman who represents the respondents in this case honors her in his heart for the course thus pursued by her, and, also, for withstanding, as she has, the many unmanly efforts which have been made by the respondents, and their employees to coerce a retraction from her or to sign a statement to the effect that said circular letter was not intended to apply to the respondents. She would do neither—the brave, true-hearted, patriotic little woman.

After referring in a general way to the other numerous exhibits in the case, and giving further illustrations of respondent's business methods and practices, Mr. Small submitted the following summary of—

HOW RESPONDENTS DISCHARGED THEIR CONTRACT OBLIGATIONS TO THEIR CLIENTS.

That while these searches or preliminary examinations were made, in many instances, by inexperienced and irresponsible boys or youths in their employ, they averaged from 7½ to 12 searches per day for each searcher; that they made numerous untruthful and dishonest reports to their clients of the results of such searches; that, notwithstanding the claims and representations made by them to the contrary, none

of the officers of the Company appears to have had any previous experience in patent practice or to have possessed any practical knowledge in relation thereto; that in many instances they demanded and retained more money than the amount agreed upon; that all the patent cases in which they were employed, either to make searches or to file applications, were turned over to their employees for such consideration and action as they, said employees, might deem proper; that, the "exceedingly artistic and effective" silver "medals of honor," costing not more than twenty cents, all inscribed alike, the name of the donee not even appearing thereon, were sent not only to all parties whose devices had been favorably reported on, but in quite a number of instances to parties whose devices had been unfavorably reported on; that an employee, a typewriter of the office, or "the office" as testified by witness Juhlin, constituted the "Board of Awards" who selected the "especially meritorious" devices entitled to said silver medals; that only a small percentage of the devices entitled, through payment of the entrance fee, to compete for the monthly prizes were actually allowed to start in the race therefor; that the "disinterested, impartial and distinguished gentlemen" constituting the "Board of Awards" whose duty it was to consider and decide on the merits of the different devices entitled to competition for the "monthly prize or prizes" never did, as a matter of fact, pass upon more than a small fractional portion of the cases entitled to be thus considered; that of the 3,800 applications filed by said Company at least 50 per cent or 1,900 have been found to contain no patentable subject-matter, their positive assurances to the respective applicants to the contrary notwithstanding; that in many instances applications were filed by them for duplicate inventions, in some cases after rejection of applications for similar ones; that in many instances they advised the taking out of foreign patents not only before the applications pending in the United States Patent Office had been acted upon but subsequent to adverse action thereon, and in some instances have actually received and retained the money remitted to them on account of said foreign applications; that they advised their clients to appeal many cases clearly unpatentable; in several instances the advice thus given has been followed to the great pecuniary loss of the respective applicants; that they failed to appear and argue several cases thus appealed; that they placed fictitious values on devices before their patentability had been ascertained, and gave advice in regard to advertising their sale, in some cases after adverse official action thereon; that nearly all the letters addressed by them to their clients were of the same misleading, deceptive, and untruthful character as their advertisements and advertising literature; that they induced many of their clients to incur expenses for "write-ups" or biographical sketches before the respective devices were found to be patentable, and in some instances before the applications therefor had been filed; in short everything connected with their so-called business is inconsistent with or rather diametrically opposed to that perfect good faith, (*uberrima fides*) that straightforward, frank, truthful and conscientious course of conduct which should ever be observed, and which the law requires to be observed by attorneys towards their clients.

"There are no transaction which Courts will criticize with more jealousy than dealings between attorneys and clients, especially where the latter are persons of inferior capacity and inexperienced in business. *Mills vs. Mills* 26 Conn. 213."

As was very forcibly said by a former Commissioner of Patents in the disbarment case of Charles H. Evans, decided July, 25 1870.

"If to be false to the Court and client, to display neither care, skill nor integrity in the management of his client's business, and to give his client false information in regard to his business, do not constitute 'gross misconduct' in a solicitor or attorney in patent cases, it must be admitted that the standard of morals in such profession is exceeding low."

EXTRACTS FROM MR. SMALL'S CONCLUDING REMARKS.

It is respectfully submitted that the foregoing indisputable facts, all of record herein, the greater and more material portions thereof being based on the admissions of respondents and the stipulations of counsel, in and of themselves not only overcome the presumption in favor of the innocence of the respondents but prove beyond a reasonable doubt, or rather prove absolutely and conclusively, that, with the single exception of the charge of forgery, they are guilty of each and every of the charges preferred against them. It, therefore, necessarily follows that they have not only failed to observe the rules prescribed and endorsed by themselves in the matter of the selection and qualifications of a patent attorney, but that they have violated and disregarded every one of them as well as the commonest duties and obligations of an attorney towards his client; and also that said evidence negatives the idea that they ever had any serious intention of doing otherwise than they have done throughout their brief but brilliant professional—God

save the mark!—career. To speak more plainly, I unhesitatingly assert that whether you apply the rules of law, of logic, or of common sense, everything leads irresistibly and inevitably to the conclusion that their aim and purpose from the first was, not as their plain and imperative duty required, to manage the business of their clients with care, skill, and integrity, but as set forth in the Office indictment, to mislead, deceive, and defraud them; in other words, that the scheme being a confidence game scheme pure and sample was "conceived in sin and brought forth in iniquity."

It is also submitted that as said facts admit of no explanations consistent with the theory of the innocence of the respondents, but lead inevitably and irresistibly to said conclusion it is unnecessary, as it would be inexcusable, to take up your Honor's time and attention by presenting any argument in support of our contentions. I will, therefore, do nothing further in that respect than to append herewith, for your convenience, the following definitions and references applicable to the several acts and omissions of gross misconduct directly chargeable against the respondents; to-wit: Malfesance,—Misteasance,—Nonfeasance,—Misrepresentation,—Deceit,—Fraud,—False Pretenses,—Suggestio Falsi—Suppressio Veri;—and generally pursuing such a course of conduct in the management of their so-called business as was calculated to bring scandal and reproach upon the patent system.

And I may here suggest that as your Honor is the sole judge of the law and the facts in this case, it is not necessary that you should concern yourself as to whether in strictness of law, under the technical rules of pleading, and evidence, the respondents have been guilty of these several offences, but whether in your judgment, and looking at the matter from a purely moral or ethical standpoint they have been guilty of them.

"Both the admission and removal of attorneys are judicial acts, so decided in repeated instances. *Ex parte Secomb*, 119 How. 9. *Ex parte Garland*, 4 Wall, 578."

Here Mr. Small submitted definitions of the several offenses chargeable against respondents, together with numerous decisions applicable thereto, and then referring to their plea of "not guilty," etc., remarked:

ACCOUNTING FOR ATTITUDE OF RESPONDENTS.

Philosopher Locke contended that moral or ethical principles are not innate but depend on our environments, education, custom, precept, and example, etc., and that hence the different standards of morality which are found in different countries; in some of them indeed vice and virtue exchanging places; and when, as all of us well know, conscience is largely a matter of growth, and that a course of conduct long continued fastens upon us habits of thought and action which become part of our nature, it is not difficult to understand the present attitude and contention of the respondents in this case. While at the outset of their brief but brilliant career they may have entertained some doubts as to the legitimacy of the business methods and practices which they adopted and have pursued, yet, as they proved financially successful and were not interfered with by the authorities, they have come to regard them not only with maternal pride and affection but also as possessing the highest and most praise-worthy merits. "By custom what they did begin with with long use accounted no sin," Carlyle says:

"The deadliest sin, I say, were that same supercilious consciousness of no sin; that is death; the heart so conscious is divorced from sincerity, humility and in fact is dead; it is 'pure' as dead dry sand is pure. Victor Hugo thus expressed the same thought: A man may be wrecked as in a ship; conscience is an anchor. Terrible it is, but true, that like the anchor conscience may be carried away."

Notwithstanding the suggestions thus made to the contrary by the eminent Scotch philosopher, and the great French novelist and dramatist, I am willing to concede the possibility of respondents' sincerity in protesting, as they do, and manifesting virtuous indignation against the present proceedings, and also that the bold and persistent attempts made by them to create the impression that the Patent Office, the patent bar association, and patent attorneys generally, are the real delinquents and defendants in this case arises from convictions; in other words, in view of the philosophical principle stated, I concede the possibility that in the feelings thus expressed and efforts made by them they are actuated by what they sincerely believe to be virtuous motives.

"The saints who are canonized amongst the Turks led lives which cannot with modesty be related. It is familiar among the Mingreliaus, a people professing Christianity, to bury their own children alive without scruple, and there are places where they eat their own children."

If we look abroad to take a view of men as they are, we shall find that they have remorse in one place for doing or omitting that which others in another place, think they merit by."

Locke on the "Human Understanding," pp. 30 and 31: "Hermes, a Greek god, the impersonation of commercial dealing, was full of tricks and thieving propensities. The Olympian man of business, industrious, fertile in resources, inventive, untruthful and dishonest; and with the Spartans, under the laws of Lycurgus, stealing was a conspicuous virtue, particularly if conducted in such a skillful manner as to render detection difficult, if not impossible."

Is it not possible that the respondents may have had these examples and principles in mind when they concocted their grand confidence-game scheme? And is it not possible they have adopted and become impregnated with them?

THE PATENT OFFICE.

It has been reported in the papers that the principal respondent herein has said the Patent Office in this case is more on trial than the Company he represents, and whether he has been correctly reported or not the suggestion sounds very much like him, and is to the same effect as other suggestions made by him to numbers of his correspondents:—that the disappointments which they have experienced in their patent matters are chargeable, not against them, their "thorough, skillful and honest attorneys," but the Patent Office. While these suggestions are made out of whole cloth, and are absolutely, flagrantly, and scandalously untrue, yet the fact is undeniable that many people, especially those who have been victimized by bogus confidence game patent attorneys, feel and believe that the Patent Office is *particeps criminis* in these nefarious schemes, and certainly in receiving and retaining a portion of the money obtained it has been put in the unfortunate position of giving color to the feeling and belief thus entertained. It is reasonably safe to say that it has received from the defendant upwards of \$30,000 on the unpatentable cases alone, every penny of which in equity and good conscience should be returned to the parties from whom it was received, many of them very poor and needy, and I avail myself of the present opportunity to enter an appeal in their behalf, and to earnestly urge that steps be taken to have this done as speedily as possible. I have no doubt Congress would promptly sanction such a course should the matter be properly brought to its attention. This being a Government of the people, for the people, and by the people, it is simply monstrous, scandalous, and disgraceful in the highest degree, that their agent, one of the great Departments of the Government, instead of protecting their interests should be made the involuntary instrument to delude and defraud them; in other words, speaking plainly, to be in these cases nothing but a *fence*, the receiver of stolen goods.

Finally, permit me to state that I entertain no doubt whatever of the result of this trial, for, notwithstanding the confident, boastful, and defiant attitude of the respondents and the formidable combination of men and money behind them, I have never for a moment doubted but what their case would be considered and decided the same as any other similar case, simply and solely on the facts and circumstances presented, and as these facts and circumstances conclusively establish their guilt they cannot possibly escape the penalty incurred therefor; and if they enjoy the distinction of being the leading and most conspicuous of their class of so-called patent attorneys, their disbarment will attract the more attention and have the better effect throughout the country, tending not only to the discouragement of others of their ilk but also to counteract the unfortunate distrust and prejudice which their nefarious practices have engendered against our splendid and unrivalled patent system, of which we are all so justly proud and which has challenged the wonder and admiration of the world, since it has done more for humanity and civilization than perhaps all other agencies combined. It should therefore be most jealously guarded from scandal and reproach, from being made a party, directly or indirectly, voluntarily or involuntarily, to any piratical, fraudulent, or confidence game scheme; and no one allowed to practice before it until he is found to possess the requisite qualifications as to character and ability and gives reasonable guarantees of his "thoroughness, skillfulness and honesty."

"And be by these juggling fiends no more believed,
That palter with us in a double sense;
That keep the word of promise to the ear,
And break it to our hope."

Needless to say I have no personal feeling against any of the respondents; indeed, until the commencement of this trial I had never seen the principal respondent to know him, and I have had no business or other relations with him whatever; on the contrary, I deeply regret to see any young man adopt a course of conduct that sooner or later must end in ruin and disgrace. Earnestly do I hope and trust, should he and his correspondents, have the good fortune to escape the penitentiary this time, that they will immediately turn over a new leaf, make restitution of their ill-gotten gains and endeavor to live down the terrible scandal and reproach which they have brought on not only their names; for I assume they have been good, reports to the contrary notwithstanding. As I have looked upon the principal respondent's manly and handsome form, his elegant attire, and bold, dashing cavalier style, it is almost incredible to believe he should be chargeable with such base meanness, such wanton and atrocious wickedness towards a class of people who are at once the most credulous, deserving and impecunious. If he has a particle of conscience or moral principle I do not see how he can possibly enjoy a moment's pleasure or take any

satisfaction in life when he reflects upon the poor people throughout the country whom he has misled, deceived, and defrauded, whose hopes he has blasted and whose money in many cases all they had in the world, he has filched and converted to his own use. Impressive therefore and imposing in appearance as is the defendant I cannot in observing him lose sight of the poor people whose trust he won and through whose credulity, ignorance, and necessities he has attained such colossal proportions; nor can I refrain from remarking that the heartless and conscienceless course which he has pursued towards his unhappy victims can only be paralleled by the audacity evinced by him since the presentation of these charges in not only reflecting on the Office but in the means he has resorted to to save himself from the just and inevitable consequences of his own acts and deeds, for surely as he has "sown the wind he must now reap the whirlwind."

I sincerely trust therefore that he and his confederates may reform and suggest that they seriously reflect upon the following words of Thomas Carlyle, the eminent Scotch philosopher: "All lies have sentence of death written down against them, in Heaven's Chancery itself; and slowly or fast, advance towards their hour. Falsehood grows ever false, decomposes itself, gently or even violently, and returns to the father of it, too probably in flames of fire."

"If a man have any purpose reaching beyond the hour and day, meant to be found extant next day, what good can it ever be to promulgate lies? The lies are found out; ruinous penalty is exacted for them. No one will believe the liar next time even when he speaks the truth, when it is of the last importance that he be believed. The old cry wolf!—A lie is nothing; you cannot of nothing make something; you make nothing at last, and lose your labor into the bargain."

Assuming that they have all along acted from disinterested and conscientious motives, all being honorable men, I have no criticism to make of the distinguished men who have so actively interested themselves in defendant's behalf; at the same time I cannot but regret, for their sakes, that they did not fully inform themselves in regard to the matter before pledging him their support, for, as they now must realize the true inwardness and enormity of the scheme, I have no doubt all of them would be glad if they could sever their connection with it, and more than glad if they were able to say they never were connected with it in any manner, shape or form. Doubtless the principal respondent, conscious, as he has all along been of his guilt, secured the alliance of these distinguished and honorable men with the hope and expectation that through their good offices, or out of consideration for them if not for him, the penalty of disbarment, which he well knew he had incurred, would not be imposed, but as he is now before the bar of justice doubtless the hope and expectation thus indulged will not be realized; and if I mistake not this extraordinary move on his part, instead of aiding him will prove a positive disadvantage; certainly thus far it has only tended to attract attention to and render his case the more conspicuous and also to strengthen and confirm the unfavorable impressions which have for some time past obtained in regard to both himself and his so-called business. If an honest, square man and if his business is honestly and squarely conducted why should it be necessary to resort to such extraordinary expedients to thus fortify and entrench himself against not only the complaints of his less enterprising—less progressive and "jealous rivals," but also against official investigation.

PARTICEPS CRIMINIS.

While there are reasons for believing that the respondents are not the only parties chargeable with disreputable and dishonest practices in connection with the patent soliciting business, yet it is safe to say none others operated so extensively, or could boast of such a formidable combination, as may be judged from these facts:—1. That while charges were preferred against them in the Post Office Department six months ago yet for reasons best known to themselves and the Post Office Department officials no action has yet been taken thereon, notwithstanding the great interest manifested in the matter by the late Postmaster General, and his positive assurance to the attorneys who presented said charges that the matter would receive "immediate and proper attention."—2. That the respondents have secured the indorsement of many men of prominence and influence, including an ex-Vice President of the United States, and several United States Senators and Representatives.—3. That its "preferred stock" is held by upwards of "3,000 newspaper publishers throughout the United States."—4. That while we may reasonably assume its business methods and practices were not wholly unknown to the former administration of this Department, yet it would seem they were not interfered with.—5. And last, but not least, they have been able to secure the personal services of men of national as well as local prominence in furthering and promoting their so-called business interests; for I contend that no single feature of the scheme under consideration played so important a part as the so-called "Special Board of Awards."

I trust for their own sakes, that the several parties who have thus, through their acts or omissions, aided and abetted the respondents, in promoting their wicked enterprise will be prompt to disavow, as well as able to show their ignorance of its fraudulent character, otherwise their silence and participation therein may be construed to their disadvantage.

It is certainly alarming enough to view the many formidable trusts and combines which have recently grown up amongst us, especially those that practically regulate and control the prices of many of the necessities of life, how then are we to regard and characterize a combine organized for the purpose of deceiving and defrauding the public through confidence-game tricks and devices, and which is endorsed and supported by national legislators, prominent bankers, merchants, lawyers and several thousand newspaper publishers? Is not this a most humiliating and fearful spectacle for all lovers of their country to witness? Is not the Republic in serious danger when such a thing is not only possible but actual, a frightful fact?

God help the country if such an evil, when exposed and shown to exist, is not speedily and effectually suppressed.

A DELEGATED AUTHORITY CANNOT BE DELEGATED.

The respondents in this case having advertised themselves and solicited business as attorneys it is submitted that they are to be judged by the same standard that applies to other attorneys, including of course their distinguished counsel. As every one knows the duties of an attorney are generally of a confidential nature, and while much of the routine business entrusted to him may be turned over to assistants or clerks, such as gathering and arranging the data necessary to the preparation and presentation of a case, yet no definite action is or should ever be taken thereon without the direction of the attorney himself, the client being entitled to his personal services. (*Chitty on Contracts* 239, 750. *Shankland v. Washington* 5 Pet. 90.)

ARGUMENTUM AD HOMINEM.

The case of the respondents may be used as an illustration of my contention in this regard. When John Wedderburn and John Wedderburn & Co. decided to employ the eminent counsel who represents them in this case they expected him to give the matter his individual attention, hence his presence here and able efforts in their behalf; nor need it be suggested that they would not have been satisfied had he delegated the duties thus devolving on him to his assistants or employees, irrespective of the question of their competency. Furthermore, we contend that had he done so, especially without the knowledge and consent of his clients he would have violated his contract and made himself responsible to them for any damages resulting therefrom. Let us therefore suppose for a moment that instead of John Wedderburn & Co., their distinguished counsel had sent

out these advertisements, and had received in response thereto these requests for searches, etc., is it conceivable that he would have adopted and followed the example of the respondents herein, expressing opinions as to the value of unpatentable devices, employing inexperienced boys to make searches to determine the important question of patentability—a question upon which the whole future management of the cases depended, etc., etc. Had he done so, and it afterwards transpired that a mistake had been made, is it conceivable that he would have induced his clients through the presentation of bogus medals, the publication of bogus biographical sketches, the writing of misleading and deceptive letters, etc., etc., to send in unpatentable cases, not only the full amount (\$50 in each case) required to secure the United States patent in patentable cases, but also the necessary money to secure foreign patents, obtaining, as I have already stated, through these disreputable and fraudulent means not less than half a million dollars? Is it conceivable, I say, that the distinguished counsel, or any other reputable and honest attorney, would have done these things or any of them? If not, it necessarily follows that what he would regard as unprofessional on the part of himself he could not approve if practiced by others; and since John Wedderburn & Co., have held themselves out as attorneys-at-law the same standard applies to them that applies to all other attorneys, irrespective of the extent of their practice, all of them standing on an equality in this respect.

It has been decided I believe in England that a person who acts as an attorney without being duly enrolled and properly qualified is liable to indictment for a misdemeanor and in view of the important interests intrusted to attorneys and how closely they are identified with the administration of justice it would seem that stringent laws should be enacted against parties who either personate them or assume without warrant and proper guarantees to discharge the duties incident to their profession. No one I am confident appreciates the force of this remark more than the distinguished counsel for the respondents, and no one, as I believe, is more jealous of the ethics and proprieties of the profession. Of course it is his privilege and right to appear for the respondents in this case and that he will discharge his full duty towards them I have no doubt whatever; at the same time, I cannot but regret that a lawyer of his high standing and achievements, or to speak impersonally, that any great lawyer should be placed in such an irksome position, and I very much question whether any fee which he might receive would compensate for the character of the services rendered.

ATTITUDE OF MY CLIENTS.

To the charge made against my clients that in the course which they have pursued in this matter they have been actuated by jealousy, I cheerfully and unhesitatingly plead guilty, and I trust they will never in the future as in the past be without this indispensably honorable feeling in all similar matters, affecting as they do the honor of a profession to which they belong and the integrity of the patent system in which they all take a just pride. It would indeed be a sad commentary on human nature if my clients, many of whom have grown gray in the practice of their profession were not thus affected, and deplorable indeed would be the situation if, as meanly and untruthfully suggested by the respondents, my clients were actuated by the same sordid, selfish, and dastardly feelings, chargeable, and truthfully chargeable against them, or that they were jealous of their more than questionable success, financially or otherwise. Not one of them I venture to say envies their success or reputation, and not one of them would exchange places with them today. My clients, many of whom enjoy national reputation, are well known to be honorable and conscientious men, of the highest character and integrity, and not one of them but would starve to death before they would resort to such rascally and utterly indefensible expedients to make a living. If I thought otherwise I would lose all faith in human nature and would not be here today as their representative. While I have no doubt everyone of them possesses the mental capacity to concoct a scheme of this character, and even possibly to excel it in its plausible confidence-game deceptiveness, indeed no great amount of ability would be required to do so, yet not one of them possesses the brazen effrontery, the moral turpitude and the conscienceless principles to engage in such rascally nefarious business, and surely it requires a John Wedderburn and John Wedderburn & Co., mold of mind, heart and conscience to concoct a scheme of this character, that has for its object the indiscriminate robbery of innocent men and women throughout the country, many of them, the great majority in fact, very poor and needy laborers, farmers, mechanics, school teachers and others of that class; and all who have given the subject any attention know very well that inventors or supposed inventors are of all classes the most credulous and easily imposed upon. This was well known to the respondents and excellently well have they taken advantage of it.

"That he would say to them untruths; and be ever double,
Both in his words and meaning; He was never,
But where he meant to ruin, pitiful."

FRAUD.

In Dantes Inferno Geryon, the representative of Fraud, the most terrible and revolting of all Hell's fiends, is thus described:

Lo! the fell monster with the deadly sting,
Who passes mountains, breaks through fenced walls
And firm embattled spears, and with his filth
Taints all the world.

Forthwith that image vile of Fraud appeared,
His head and upper part exposed on land,
But laid on the shore his bestial train.
His face the semblance of a just man's wore,
So kind and gracious was its outward cheer;
The rest was serpent all: two shaggy claws
Reached to the arm pits; and the back and breast
And either side, were painted o'er with nodes
And orbits. Colours variegated more
Nor Turks nor Tartars e'er on cloth of state
With interchangeable embroidery wove,
Nor spread Arachne o'er her curious loom.

So on the rim, that fenced the sand with rock,
Sat perched the fiend of evil.

Fraud of all malicious acts abhorred of heaven
That in every corner leaves a sting
May be by man employed on one whose trust he wins,
Or on another who holds strict confidence.
Fraud because of man's peculiar evil,
To God is more displeasing;
The fraudulent are therefore doomed to endure severest pang.

It is submitted that in these few lines the great Italian poet has fairly portrayed the defendants in this case—in the strength of their combination, the extent and baneful effects of their operations, their "kind and gracious" professions and assurances, the means employed "shaggy claws," not two however, but an hundred and more, to accomplish their nefarious purposes, and the cold-blooded heartlessness with which they have violated the confidence reposed in them by those "whose trust they won."

I therefore in behalf not only of my clients and our patent system, but also in behalf of the honor and integrity of our Government, both so seriously involved in this case, and in the

interests of truth and justice demand: First. The immediate disbarment of John Wedderburn and John Wedderburn & Co., for gross-misconduct; and Second. That the attention of both the Post Office Department and the Department of Justice, be called to the case, and to the several exhibits relating thereto, with the view to such further proceedings in the premises by said Departments as the facts and circumstances therein may warrant.

Electric Plowing.

From time to time during the last ten years and more we have heard rumors of steam and horses being supplanted in plowing by electricity, but the affairs have usually been only experimental and have led to no permanent results. Lately, however, the system has been worked out in Germany on a commercial basis, by Mr. A. Borsig, of Berlin. Electric plowing tackle is best adapted to meet the requirement of the great beet-root estates in Germany, which are devoted to the manufacture of sugar, for they are of large extent and have command of capital to enable them to adopt all labor-saving appliances.

The overhead conductors do not extend into all the fields, but are tapped by temporary wires laid on the ground, as required. On the motor wagons is fixed a 40-horse-power alternate-current motor, with the necessary switches and driving gear both for the hauling and traveling, while the anchor wagon carries the anchor and a sheave round which the hauling cable runs. It is possible, with an electric conductor of 500 meters—1,640 feet—and a plowing rope of 300 meters—985 feet—working length, to plow 222 acres from one center of operations. The motor wagon carries two drums on horizontal axes. On these the two ends of the rope are wound, the bight passing round the sheave on the anchor wagon. One drum is driven to draw in the rope, while the other runs under a brake to keep the tail rope fairly taut. The two parts of the rope are led round guiding sheaves, revolving in horizontal planes under the wagon. The two rear wheels can be connected to the motor by clutches and gearing to propel the wagon, while the two leading wheels serve to steer it. There is a platform for the attendant, with the various handles and levers grouped in front of it. The weight of a motor wagon is seven tons. Mr. Borsig states that, with fixed steam engines of 250 horse-power and with five plows, 6,000 acres of medium heavy ground can be plowed to a depth of fourteen inches, at a cost of ninety-five cents per acre. If separate engines have to be employed, the cost per acre is increased by fourteen cents per acre.

The anchor wagon carries a sheave around which the plowing rope runs. The sheave is fixed in a guide, and is connected by a chain to the anchor. Hence, as the anchor sinks into the earth under the pull of the rope, the sheave and it move together. The anchor itself has four prongs, and is hung from a light crane, or derrick, by which it can be completely raised for traveling if the jib be wound up by the worm hoist at the opposite side of the frame. At other times it is manipulated by the chains running round the pulleys at the head of the jib. The slack end of the plowing rope, when the plow is moving toward the motor wagon, actuates gearing which winds the anchor out of the ground and moves the anchor wagon forward into the right position for the next double set of furrows. At the same time, the anchor and sheave are moved backwards, relatively, to the frame to allow for the slip of the anchor in the earth. The anchor is then dropped by the attendant, and the next set of furrows cut. The strain of the rope goes direct from the pulley to the anchor, and not through the wagon frame.—*London Engineering.*

International Fire-Prevention Congress.

In order that wide-spread measures may be taken to prevent the recurrence of the terrible disaster at the charity bazaar in Paris, it is proposed to hold an international congress of experts in that city, together with an exhibition of fire-extinguishing apparatus, etc., the scientific discussions being accompanied by practical illustrations. Makers of fire-engines are invited to send exhibits, and architects, engineers, inventors, and others are asked to forward plans or designs for safeguarding theatres, concert-rooms, and other buildings.

A Serviceable Invention.

Mr. Henry H. Bates of this city is not only a patent solicitor but an inventor as well. He has obtained a patent on a simple and inexpensive device—a portable coat hook for pocket use. It ought to prove universally popular and as Mr. Bates is anxious to give the benefit of his invention to the public he will dispose of the whole or a part interest at a nominal figure, or will manufacture on royalty, to any one who can push the introduction and sale of the device. It is so simple and so necessary its popularity ought to be apparent at a glance.

Interdependency of Inventions.

The advent of important inventions is often dependent, says a writer in Cassier's Magazine, not upon the brilliant inspiration of some individual inventor, but upon the general and gradual advance of the state of the art to which they belong, making their occurrence not only possible, but almost inevitable. The bicycle is an excellent example of this kind of growth in mechanical construction, since, while it is one of the most important things, both mechanically and commercially, which has ever been produced, it owes its development to the parallel improvements in metal and rubber working, without which it could never have existed at all, in the modern sense, or to any extent. The clumsy wooden velocipede would always have remained a useless toy, had not the introduction of drawn steel tubing made the construction of a light, and yet strong, frame possible, while the original leather tire of Dunlop could never have led to the practical application of the pneumatic principle without the substitution of the rubber construction, which only the advances in rubber manufacture made possible. This is but one instance of what is apparent in many other lines of work, and there is little doubt that, if the patent records of the past fifty years were thoroughly studied by competent specialists, many inventions, which at the time of their conception were failures, simply because of the impossibility of executing the ideas, would now be found both practicable and valuable.

An Electrical Department Added.

The Miller-Knoblock Company, South Bend, Indiana, who electric street sprinkling cars are well known, is adding to its already large business an electrical department, which will be under the direct supervision of Mr. A. W. Morrell, an experienced electrical engineer and constructor, who has had years of experience in street railway motor work. It is the intention of the company to manufacture and carry in stock, ready to ship at a moments notice, Morrill's improved assembled motor commutators for electric power motors. The fact that users of motors can procure assembled commutators for all standard motors, will be appreciated. They will also carry in stock, armature coils for all the standard motors. A complete equipment for the rewinding of armatures has been put in. Mr. Morrell, who has charge of the electrical department has had long experience in electric street railway work, and is well known at St. Louis, Minneapolis, Indianapolis and Cleveland where he has had charge at different times, of important works.

Buoyant Propeller.

Goldsbury H. Pond, of Ashburnham, Mass., has recently been granted a patent for a new means of boat propulsion. This is used in connection with steam or other power, and consists principally of a boat that has open spaces in its bottom in which work buoyant pontooned wheels. These driven by cables work around endless rails, which make an oblong frame rounded at the ends. By this method of boat propulsion, there is continuous contact with the water by the propelling apparatus, which not only drives the boat along, but keeps it buoyantly afloat. The inventors design in this is for practically a bottomless boat. And it may solve the problem in which the French roller boat failed.

Lights for Night Horse Racing.

A scheme for lighting race tracks for night horse races has been patented by two Omaha men who purpose showing the same at the exposition and giving a practical example of the working of it. The inventors are L. V. Morse and E. G. Solomon. The claim made by the inventors is that the arrangement of the lights is such that all the light is thrown on the track, instead of into the eyes of the spectators, as by other systems, and they claim to have the lights so arranged as to avoid making shadows of the horses on the track.

The greatest complaint made by racing men concerning night racing is against the shadows which confuse the horses until they do not know whether they are racing shadows or competitors. The inventors of the new system claim to have overcome this objection by means of searchlights placed at the turns and by overhead lights placed directly over the tracks. It is claimed that the lights are so arranged that the horses can be plainly seen at any point on the track and that the lights are shaded in such a way that none of the rays shine in the eyes of the spectators.—*Omaha Bee.*

FRAUD ORDER ON WEDDERBURN.

Hearing Before the Post Office Department in Relation Thereto.

A hearing in the case of Wedderburn & Co., who are to show cause why a fraud order, depriving them of the use of the United States mails, should not be issued against them, was in progress as this number goes to press, before Assistant Attorney General Tyner of the post office department. Wedderburn & Co. were represented by Judge Jere Wilson, and the Patent Bar Association by Joseph R. Edson, Wm. H. Doolittle and F. C. Somes, who had been appointed to conduct the case on behalf of the association. Assistant Commissioner of Patents Greeley and Law Clerk Stauffer were present, together with several prominent patent attorneys. Wm. Small appeared as principal attorney for the prosecution and made the final argument in the case.

The action in the post office department was taken by direction of Secretary Bliss who in approving the disbarment of John Wedderburn from practice before the patent office, instructed Commissioner of Patents Butterworth to call the attention of the postmaster general to the use that has been made of the United States mail by Wedderburn & Co.

The commissioner's letter to the postmaster-general was as follows:

"In obedience of the direction of the honorable secretary, I herewith transmit a copy of the findings and decisions in the matter of the proceedings against John Wedderburn and John Wedderburn & Co. for disbarment for gross misconduct as solicitors practicing before this department.

"I herewith return, with thanks for their use, a number of letters from John Wedderburn & Co. to various persons, loaned to this office by your department. I also send for your information a number of letters received by this office, copies of charges against John Wedderburn & Co. and their answer, together with other printed matter, which discloses the character and quality of the advertising literature used by the respondents and the business in which they were engaged.

"In compliance with this request of the honorable Secretary of the Interior, I beg to call your attention to the fact that the United States mails have been constantly and persistently used to promote the schemes of John Wedderburn & Co. and used, as I believe, in contravention of the law. It seems obvious from the evidence before me that a conspiracy was entered into by a number of persons in contravention of section 5440 of the Revised Statutes, and that the statutes in regard to the use of the mails for fraudulent purposes were openly and defiantly violated by these conspirators.

Certainly the literature and correspondence to which your attention is called was deposited in the mails for transmission to the parties addressed, for the purpose of deceiving, misleading and defrauding them, and it appears that the commission of the offense was so profitable that the conspirators not only went without rebuke or punishment, but used at least two of the departments of the government as instrumentalities to carry out and into effect the object of the conspiracy I call your attention particularly to the circulars, pamphlets and correspondence used by the respondents, and especially to the circular, entitled 'A New Departure' and 'One Thousand Inventions Wanted,' and to a journal called The National Recorder, in connection with the communications addressed to various clients by the respondents.

"It unfortunately occurs that the victims of the dishonest practices mentioned are scattered all over the country, and a vast majority of them are poor. Some of them, as we are informed, paid their last penny to John Wedderburn & Co. for information that was, in fact, worthless, and many others paid sums ranging from \$25 to \$150 for the prosecution of applications for patents in cases where there could have been no reasonable hope on the part of a competent attorney that a patent could be obtained.

"The United States mails and the patent office were used as the instrumentalities for fleecing these victims, and unfortunately the victims were not in a position to secure either the exposure or punishment of the delinquents by whom they were victimized.

"You will observe that the press was used without limit or stint, and it is surprising to observe that although people in almost every part of the United States were interested to be informed of the action of the honorable Secretary of the Interior with reference to the disbarment proceeding, scarcely one of the great morning journals in New York, Philadelphia, Boston, Baltimore, Cincinnati, Chicago or of the other cities of the Union had any reference to the decision. The combine that is presumably, judging from results, influential enough to prevent

news that is important to the public from being transmitted by the usual agencies throughout the country, can assert a power and influence dangerous to the public welfare and far too strong for single individuals to cope with, and presents a case in which the power of the government itself should be put forth in the interests of the people.

"Any evidence under the control of this office which may be required in the investigation or other proceedings you may institute will be promptly furnished."

In the proceedings in this case Wm. Small made the closing argument and held that the post office department having been advised of the disbarment of Wedderburn by the interior department and the reasons therefor including the alleged violation of the postal laws, it was the plain and imperative duty of the post office department to instruct the postmasters to not deliver any mail matter which may hereafter be received addressed to John Wedderburn, Patent Attorney, or John Wedderburn & Co., Patent Attorneys, nor to receive for carriage any mail matter from these parties, and failure on the part of the department to so order would put it in the false position of aiding and abetting still further frauds on the public.

The contention of the defense is that they cannot now be excluded from the mails because of objectionable matter alleged to have been mailed in the past—that no matter what has been if the present is all right no fraud order should issue.

Owen H. Fowler.

Among the younger members of the legal fraternity in Washington who have achieved an enviable reputation for a faithful, honest and conscientious discharge of the duties and trusts committed to their



care, in the practice of Patent Law, may be mentioned the subject of this sketch Mr. Owen H. Fowler a son of J. M. Fowler, Examiner of Interferences of the United States Patent Office and member of that most favorably known firm of Patent Attorneys O'Farrell, Fowler and O'Farrell.

Mr. Fowler is a Washingtonian by birth and was educated in the public schools of this city and graduated with honors from the high school. He has taken a thorough course in mechanics at the Maryland State College and also a classical and scientific course. For many years prior to entering the above firm as a partner he was associated with some of the leading members of the Washington patent bar.

Mr. Fowler is a thorough master of detail, so necessary in a technical business of this kind and is thoroughly posted on all matters pertaining to patents. He enjoys the reputation of being successful and has proven himself a capable and trustworthy practitioner.

Patrick Henry O'Farrell.

Mr. Patrick Henry O'Farrell, junior member of the well known firm of Patent Solicitors, O'Farrell, Fowler & O'Farrell of 1425 New York Avenue, and only son of Capt. Patrick O'Farrell who is so well and favorably known as a Pension Claim Agent through out the United States, has risen very rapidly in his chosen profession and while yet a young practitioner has gained considerable favor as an able and conscientious solicitor of patents. No member of the Patent Bar in this city is held in higher esteem by his brethren and others than Mr. O'Farrell.

He was born in Hartford Conn., but his parents moved to this city when he was a small lad. His early schooling was gained in the common schools of this city and Georgetown and St. Charles colleges, after which he entered the National University Law School where he graduated with the

highest honors. He is also a member of the Loyal Legion and other patriotic societies.

The firm of O'Farrell, Fowler & O'Farrell was formed some six months ago and is composed of Capt. Patrick O'Farrell who has been engaged in prosecuting claims against the Government for the past twenty years or more, Mr. Owen H. Fowler,



son of Examiner J. M. Fowler in charge of the Interferences in the United States Patent Office, and the subject of this sketch.

Mr. O'Farrell believes in keeping abreast of the times, and to qualify himself to treat matters entrusted to him, never hesitates at work. While of rather a retiring disposition he has the ability and faculty of holding his clients by the quality of his services, his unfailing good nature, his ability to work out knotty problems, and his never ceasing perseverance and success in securing for the clients of his firm that protection in the Patent Office or in the courts to which they are legally and equitably entitled.

William Small.

William Small, extracts from whose brief of argument in the recent disbarment proceedings against John Wedderburn appear in this issue, is a native of Inverness, the capital of the Scotch Highlands. Coming to this country however in his early youth, and having been connected with the Government service, civil and military, nearly twenty years, he is by education and experience, as well as by adoption and natural predilection as much an American as if he were to the "manor born." From 1866 to 1882 Mr. Small held important positions in the treasury and post office departments, and, besides discharging many other duties, had charge of a large number of criminal prosecutions against offenders of the postal laws in different parts of the country, including the well known Little Rock, Arkansas, "Stamp Trafficking Fraud" cases, in the defense of which the leading attorneys of that city and state were employed. Since 1882, when he voluntarily resigned his position as special agent of the



post office department, he has been actively engaged in the practice of his profession, the law, having graduated with degree of Bachelor of Laws, from Columbia University, class of 1869; and while a member of the law firm of McGrew & Small, and since its dissolution, two years ago, by the death of its senior member, the late Hon. J. M. McGrew, Mr. Small has been the attorney in a large number of important cases in the different courts.

Mr. Small resides with his family, consisting of a wife, several daughters and one son, at 1315 Roanoke Terrace, Columbia Heights, the most beautiful residential part of our city, but it is understood he is likely to soon change his residence to Canada as a United States consular official.

A MONSTROUS FRAUD ON INVENTORS.

(Continued from first page.)

quasi criminal; that the proof of gross misconduct must be established beyond a reasonable doubt; that no inference prejudicial to the respondents could result from the fact that Wedderburn refused to testify or from the fact that he failed to produce as witnesses those who were in charge of the several departments of his business, the integrity of the management of which was especially called in question, and who doubtless could readily have explained, if such explanation was possible, that their business methods, which were the subject of inquiry, were free from the taint of fraud and deceit, and made clear in what cases, if any, delinquencies were due to accident, oversight, or unintentional errors, and not to moral obliquity.

Counsel were urgent in protesting that these omissions to do what every rule of right and common sense enjoined were not circumstances that could properly reflect on the respondents to their prejudice; that the fact that the respondents could have shown whether there was in fact what might properly or improperly be called a "Roll of Honor," of which so much is said in the Wedderburn & Co., advertisements and correspondence, or whether it was a fraudulent pretense; that they could have shown, if such a showing was possible, that their "sterling silver medals" were gotten up and distributed for a purpose and in a manner consistent with honorable conduct and not as a snare. Their refusal to open their mouths in that behalf could not, say the counsel, be considered to the prejudice of the respondents.

The relation of the National Recorder to John Wedderburn & Co., of whose knowledge, experience, integrity, and irregular practices it has been the indorser and champion, they refused to explain or even speak of or testify about. (Page 5 et seq., Greeley's report.)

By what arrangement the respondents succeeded in inducing several thousand newspapers throughout the land to commend them and, in effect, stand as sponsors for the dishonest practices in question, calling the attention of their readers to the respondents as capable solicitors of profound knowledge of patent law and practice coupled with wide experience and high integrity, in justice to all parties that might be affected, needed explanation. But not a word of explanation was offered; but the respondents left the more than three thousand newspapers in the position of defenders of a confidence game and recipients of the profits of the odious offense; and counsel protest that their silence is not against them, and that no presumption could arise by reason of the failure of John Wedderburn & Co., or their agents employed to contrive and work the scheme, to explain that which needed explanation or give information where information was indispensable to vindicate the integrity of his action and that of his company.

But it was urged that the respondents occupied in the behalf mentioned precisely the position of a criminal at the bar who was being tried by a jury for the commission of a crime, i. e., that silence argued nothing, and that no inference prejudicial to them could be drawn from their refusal to impart knowledge which they alone could impart, and in the absence of which the conclusion is inevitable that they were silent because the less known of their methods and practices the better for them.

From all these propositions touching the jurisdiction of the Commissioner and the effect of Wedderburn's conduct in this investigation I wholly dissent.

First, it is not true, in law or in fact, that Mr. Wedderburn or his company sustains the relation to the Commissioner of Patents that a member of the bar sustains to the court.

JURISDICTION OF COMMISSIONER.

The Commissioner of Patents is not a member of the judiciary, nor are the practitioners before the Patent Office members of a court of which the Commissioner is the judge; nor does the Commissioner have the authority or jurisdiction that a judge has in investigating the conduct of a lawyer who is charged with gross misconduct. It is doubtless true that the standard of integrity and character of men practicing as solicitors before the Department should be as high as that properly demanded of an attorney practicing before a court of justice.

But an attorney is an officer of the court and subject to the order of the court. He takes an oath of office when he is admitted to the bar, and in an investigation properly instituted for his disbarment the court has power to compel the attendance of witnesses and the production of papers. I do not mean by this that the judge can compel any individual to testify against himself or that the accused may be compelled to produce papers or records which will tend to convict him.

As to the presumption which arises in Wedderburn's case, I hold that whenever it was within the power of the respondents to make clear the reason

for not performing a plain duty toward a client, or for having misstated a fact to a client to his injury, or for treating him uncandidly or dishonestly, he should have availed himself of the opportunity; and when the integrity of the methods employed of giving expert estimates of the value of inventions and the conduct of the sales department were called in question—and it was not only charged, but, in the nature of things, judged by results, and in the absence of explanation the conclusion was irresistible that they were a farce and worse—and it appeared that the knowledge of the alleged "expert in values" was a pretense and a sham, and that he was constantly fixing fictitious values on inventions, it was not only competent for Mr. Wedderburn, but it was his duty to himself, to the Patent Office, and to the public to explain, if he could, how his conduct in the matters called in question was defensible, and to show, if he could, in the light of what had been proved, that his methods and practices were not instruments of fraud, but legitimate and proper.

I hold that counsel for respondents were wrong in their contention concerning the jurisdiction of the Commissioner, and also as to the rule of evidence by which he should be guided.

Again, it was urged that John Wedderburn & Co. were a corporation and that they could not practice before the Department, and hence were not amenable for the shortcomings of John Wedderburn, who appeared, nominally, to conduct all the business solicited by John Wedderburn & Co.

There are several answers to this: One is that John Wedderburn & Co., did solicit business and hold themselves out to the public as solicitors of patents; it is true that they were employed as such; it is true that through John Wedderburn they did prosecute applications for patents; it is true that all their correspondence shows that that was their professed avocation, and they were paid by their clients for doing what their counsel now say they did not and could not do.

If they are not solicitors of patents, practicing before this Office, if they did not in fact do what they publish, promise, and undertake to do, they for that reason are guilty of obtaining money under false pretenses.

But they are solicitors of patents before this Office, whether trustworthy or not, and the fact that they, for any purpose satisfactory to themselves, have changed front when they come here to answer for alleged delinquencies does not change their relation and attitude toward the Office, but may suggest motives other than creditable for doing business in that way, but which I need not now consider.

It occurs that substantially all there was of John Wedderburn & Co., conspicuously in evidence was John Wedderburn, and whether he used the corporation for the purpose under consideration or the corporation used him is not of vast concern in dealing with the methods and practices in question.

It appears also that the company and the National Recorder are the instrumentalities by and through which the respondent, John Wedderburn, has been enabled to successfully carry out and into effect the plans and purposes complained of.

But counsel may treat the exact reverse of that as the real fact if they prefer. The change of front does not change or relieve the situation with reference to the matters under consideration.

John Wedderburn & Co., do all the soliciting of employment. The company appears in all the papers, advertisements, and literature, and when the client has been secured John Wedderburn steps to the front, nominally, to do what the company undertook to do; and it is true that the name of John Wedderburn & Co., does not appear in conducting the business in the Patent Office, except through John Wedderburn, whose name appears on the papers on file in this Bureau, and he alone, nominally, at least, through employees of his or the company's, conducts the business, whether it be to make a search, prepare a specification, or otherwise.

In other words, John Wedderburn uses John Wedderburn and Company to solicit business, and when they get the employment he transacts the business in the Patent Office and Wedderburn and Company conduct the business correspondence. We will try and deal with the substance of things and not with shadows.

So far as the National Recorder is concerned, which is the journal connected with and used to boom this enterprise and its promoters, it appears to have its inspiration from the same source, its foundation laid upon the same individual, and they are elements of the same peculiar combination.

TENDENCY OF RESPONDENTS' METHODS.

It was urged by counsel that with regard to the methods adopted in soliciting and conducting business, so far as the Commissioner of Patents and the Secretary of the Interior are concerned it is none of their business whether these methods are up to a proper standard of professional ethics or not; that they have not nor has either of them jurisdiction to call in question the character or quality of those methods; and that all the Commissioner has to do and the extent of his jurisdiction is to see that the

business when brought to the Office is properly conducted, but that the means employed by the respondents to secure the business, their dealings with the clients, or the manner in which that business is handled for the client is matter of no proper concern to the Commissioner of Patents or to the head of the Department.

Let us see whither we would drift if the contention of counsel be admitted as correct.

The Government has offered to grant patents to inventors for certain new and useful improvements in the arts, and has prescribed the mode of obtaining a patent.

The citizen may apply to the Government in person, or he may act by an attorney or agent who is recognized as competent and fit to appear as such agent or attorney.

It is a novel proposition that an attorney or solicitor may advertise that he has not only consummate ability, large experience as an attorney, and high integrity, but that he has also special facilities for conducting business with the Departments of the Government, and for these several reasons solicits employment as a solicitor to obtain patents, and is employed by reason of those representations; but whether what the solicitor says and does in this behalf is true or false, honest or dishonest, whether in the conduct of the business with the Department the agent or attorney is guilty of fraudulent practices in that behalf or not, is matter of no concern to the Commissioner or the head of the Department; that the solicitor may utilize the offer of the Government to grant a patent as a means and instrumentality to defraud citizens by improperly inducing them to believe that they can readily acquire a fortune by a slight mental effort in the direction of improving on some simple device; that he may falsely represent to those citizens that they will receive advice free; that he may make fraudulent and misleading statements to them in matters which are material and important for the purpose of inducing them to employ him to represent their claims to secure the grant from the Government, and that his methods, whether honest or fraudulent, whether he is practicing law or conducting a confidence game, are matters of which the head of the Department shall not take notice.

If the position taken by counsel is correct, and it was so proclaimed to the world, it would result that within six months every city in the United States would have an organized combine of confidence men, guided by unscrupulous attorneys, plundering the unsuspecting members of the community by representing that they could at small cost obtain from the Government something of great value; and as a result the cutpurse could with advantage leave his calling, and the foot pad abandon the road, and both seek an easier and safer method of obtaining money by prosecuting business with the several Departments of the Government.

DUTY OF THE COMMISSIONER.

I submit that it is the duty of the Commissioner of this Bureau (and every other bureau of the Government and the head of the department to which the bureau belongs) to see to it that every citizen transacting business with the Bureau or Department is protected in his rights, and that no individual, whether he is a member of the bar or not, shall utilize his relation to the Department to defraud citizens who have or who are induced to believe that they have business with the Government and intrust that business to a solicitor.

It is pertinent to add here that as Commissioner of Patents in conducting these proceedings I am not clothed with the power of a court to compel the attendance of witnesses or the production of books and papers.

Whether the respondents or their employees or agents would testify concerning their business methods and practices, or in any behalf material to develop the truth, was entirely optional with them; and it is proper to say that although the methods and practices of Mr. Wedderburn and his company were directly called in question, and the charges were of such a nature as to impute to him and some of those associated with him moral turpitude and fraud in dealing with clients, he availed himself of his right to refuse to testify, nor did he produce books or papers to refute or mitigate the charges against him, nor did he call as witnesses persons whose connection with and knowledge of his acts, methods and practices, the integrity of which was called in question, enabled them to tell the truth with reference to acts complained of.

It is difficult to conceive of a person so preternaturally dull as not to know that, if the business methods and practices complained of were defensible and proper, the respondents would have welcomed with pleasure the opportunity to show that they had told their clients the truth, that they had not swindled them, but dealt with them in some measure conformably with the duty imposed upon them as a result of their employment, and thus have vindicated their claims to confidence.

So far from this open, manly course they tried to exhibit a veneering of honesty by calling two wit-

nesses who were employed after the criticism and condemnation of the methods and practices of the respondents had become open, notorious, and severe, and those witnesses seem to have been selected with more reference to what they did not know about the whole range of the respondent's business methods and practices than what they did know.

They were called to show, that so far as their knowledge of searches was concerned, the delinquencies charged might possibly be due to mistake or oversight; and that so far as they were personally concerned they did, within the sphere of their somewhat limited jurisdiction, discharge their duty properly and to the best of their ability.

Some affidavits were also filed in the same behalf by the respondents, which were read in place of depositions.

It is proper here to say that it is one of the worst features of the methods and practices of Wedderburn & Co., that young men anxious for employment are employed and utilized by respondents to write in praise of and assist in promoting business schemes and enterprises which are reprehensible in method and influence, if, in fact, they escape being criminal, the tendency being to proclaim to the community, and especially to young men desiring to engage in business and to earn money, that neither strict integrity, candor, nor the observance of the recognized canons of common honesty are necessary, or in fact desirable, in money getting.

And there is little doubt that the demoralizing influence of the methods and practices of the respondents as solicitors of patents, during their brief career, has been far-reaching by reason of the agencies employed, of which I shall speak hereafter, and has done more to injure the Patent Office and to place the practice before that Bureau upon a low moral plane than the combined efforts of all the delinquent practitioners who have appeared before the office in a quarter of a century; and it results that to deal with those methods and practices slightly or to treat them as if they were oversights, mistakes, the result of bad judgment, or pardonable indiscretions is to make the Department not only an apologist for, but an active participant in, the reprehensible conduct, and thus bring the Government and its administration into deserved contempt.

The very essence of the offense is the methods and agencies employed and the manner of their employment to mislead and entrap the unsuspecting, doubtless in the belief that the victims of the deception are helpless and without remedy, and that the vast sums of money realized will enable the delinquents to secure immunity and pay for hunting down any official or citizen who calls the delinquents to answer for their offenses.

The evidence sustains the charges against the respondents, except that of forging the name of Hon. William Sulzer.

They are in no wise guilty of that offense, and the charge was dismissed.

Mr. Sulzer called at the Patent Office and explained that he knew nothing of the respondents, their character, standing, ability, methods, or practices, but that on examining the letter in which he commended Mr. Wedderburn he found he had signed it, and then recalled that he had been requested to do so by William L. Crounse, a correspondent of the New York World, upon whose statement in regard to Wedderburn he relied, and it appears that that correspondent has been a business associate, identified with the respondents in at least one branch of their enterprise, and it was a part of his mission to obtain commendations of Wedderburn from men of known character and standing, and these recommendations thus obtained were and are used to induce the public, especially the unsuspecting throughout the country, to trust the respondents as solicitors before the Department.

These recommendations were some of the decoys used. Thus public men, many proprietors of newspapers, and others of known probity, having no knowledge of the schemes and practices of the respondents, were made the innocent instruments of promoting that which they would unhesitatingly condemn had they known the real facts.

Recommendations thus obtained were and are used to the utmost to convince the readers of the respondents' literature that they are solicitors of rare capacity, large experience, unusual facilities, and spotless integrity.

FORTUNES FROM PATENTS.

As is known, large fortunes have occasionally been made out of patents. Sometimes devices seemingly simple and inconsequential have proved very valuable to the inventor or owner of the patent, but these instances are, like angels' visits, very few and far between.

They serve, however, when placed before plain, honest people, in connection with certain suggestive hints and misrepresentations to the effect that there is a great unoccupied territory which inventors may immediately enter with profit and honor; and that the arts pertaining to the common affairs of life and the utensils of everyday use may be readily improved

upon, and the improvements patented with pecuniary profit and advantage to the inventor, to mislead and deceive; and thus, by well-contrived, false, and delusive suggestions and misleading statements, thousands of men and women in various parts of the country have been induced by the respondents to part with their money in the belief that an opportunity to make a fortune awaited them if they could invent some improvement on an attachment for a rocking-chair, a chalk sharpener, washing machine, buckle, butter and cheese cutter, or any one of the thousand things used on the farm, in the shop, factory, or home, and with reference to which an improvement in the shape of a change or modification could be made from the precise thing these would-be inventors were in their experience accustomed to use; and they were also invited by this same advertisement and circular to enter the lists for the \$1,800 Wedderburn prize, it being false that an \$1,800 prize was offered, except in the advertisement.

And the astounding explanation or apology was offered by one of the counsel, who had been a member of the Wedderburn Company, that if the readers were deceived at first, they were, or could be, undeceived later on, and the victim of the deception might or could learn from the literature sent him after Wedderburn succeeded in getting into correspondence with him, that there was in fact no \$1,800 prize, but twelve \$150 prizes offered during the year.

That is, having been induced to bite at the \$1,800 bait, after the victim was on the hook he learned that there was only \$150 bait, and, latter, that while a vast number felt the hook very few got even a taste of the bait.

The readers were also assured in one of the pamphlet advertisements, and in other cases by correspondence, that they would have advice as to the patentable nature of an invention, or supposed invention, free of cost.

This was another false and delusive statement.

If the respondents ever gave advice of advantage to the client, or the person they were trying to make their client, free on any subject, no matter in fact about the quality, the record does not disclose the fact, and the advice they did give in regard to values, which was to the supposed inventor matter of substance, and to control his action, was not only of no value to the client but was a farce, and worse than a farce, as it occurred that one individual, whom they were pleased to call their "expert," on having some device or alleged invention shown him stated, obviously without knowledge of its value, that it was worth \$2,000, or 5,000, or \$10,000, or \$20,000 and a report of this "expert opinion" would be presented to the misguided and credulous applicant as if some intelligent gentlemen, an expert in the art to which the proposed or alleged invention belonged, had, after careful investigation into the state of the art and the relation of this particular device or contrivance to those already in use, ascertained that probably the invention might be worth in the market \$2,000, \$5,000, \$10,000, or \$20,000, or more if patented immediately and properly handled. (Greeley's report, p. 17 et seq.)

And it must be observed that, by a singular coincidence, each of the thousands of applicants was assured that he presented an invention of "rare merit," or of "great value," "if patented immediately" and judiciously handled.

It was seriously urged (and it was a cause of surprise and regret that any attorney could urge such a view), as herein before mentioned, that the practices and methods of John Wedderburn and Wedderburn & Co., in the behalf I have mentioned were none of my business, and, by the same token, matter of no concern to the head of the Department; that whether his and their methods and practices in soliciting and conducting business before this Bureau were well or ill, creditable or discreditable, honest or dishonest, was matter with which we have nothing to do.

If that is true, the Government and its officials are in a most deplorable situation.

If it is true, it must follow that a cutpurse or a footpad stands on the same plane, so far as our right to inquire into his character and business methods is concerned, with a reputable attorney of known probity and uprightness, and the former, after once on our roll, has the same right to act as agent, solicitor, or attorney, transacting business for others with this Department, seeking the grant of a patent, or other relief.

Another result must be that our penal institutions may become kindergartens in which to train solicitors to represent claimants and petitioners before the Government Departments.

Certainly no reputable or self-respecting man would consent to remain at the head of the Patent Office, or any of the other bureaus, after he ascertained that it was being used, and could legally be used, to promote confidence games and entrap the unwary to get their money.

It was also urged with serious countenance, strange and revolting as it may appear, especially by the attorney who wrote a part of the misleading and deceptive literature, that the information contained

in the literature under consideration was *not* in form, even if for any reason it was misleading, that at best the use of such literature is a matter of taste, and that is all.

In regard to that, I may say that it is well known that the worst, most deceptive, and dangerous character of lying is that which finds expression in suppression, perversion, or distortion of the truth, and it occurs that a large part of the correspondence and literature offered in evidence, and which was sent through the United States mail from the offices of the respondents, was intended to mislead or deceive; or, if it was not so intended, but was intended to express the exact truth, the author of the reproductions had a singularly fatal faculty of utterly failing in that behalf to make himself understood.

An examination of the literature and correspondence as a whole shows that it was prepared with intent to deceive and mislead the unwary and the unsuspecting; and that it did do just that thing is established beyond question, and the evidence on that score is accumulating.

Whether Mr. Wedderburn himself has knowledge of the patent law, or could properly prepare an application for a patent, would not ordinarily be of consequence, for I deem that whether he was learned in the law or was wholly unfamiliar with patent practice, nevertheless he might employ thoroughly skilled and competent men to transact business; nor would he be censurable for any oversight or neglect of a competent person selected with care and charged with the proper conduct of the business, but for the fact that Mr. Wedderburn seeks clients by announcing to them that he is a lawyer of ability, large experience, and of most captivating integrity.

If the respondents have these qualifications in substantial measure, there is a lack of evidence to establish the fact. The promise and the performance appear in inverse proportions.

There were competent persons in the employ of Wedderburn & Co., more especially after his methods became the subject of such general comment and criticism, and in most instances these persons discharged the duty assigned them fairly well; but it is not complimentary to some of these young men that they were identified with an enterprise which employed methods that were, or should have been, known to them to be of doubtful honesty and well calculated to compromise and injuriously affect not only the Patent Office in its dealings with the tens and hundreds of thousands of persons who have business with it, but to create the impression that the profession of the law was made up of unscrupulous sharpers; and it was this fact that induced the Washington Bar Association to demand an investigation, that the integrity of its members might be vindicated as having no lot or part in or sympathy with the practices and methods that have been called in question.

And here it is proper to say, in defense of members of the bar, that the statement has been circulated with scrupulous or unscrupulous care that the criticism of the methods of the respondents by honorable members of the bar was due to the fact that the critics were envious of the success of the respondents as solicitors of patents.

It is enough to say that it would be difficult to find a lawyer of any repute who would envy the man, firm, or corporation the success that comes from the utilization of the corrupt and degrading methods herein called in question.

It is somewhat startling if members of the legal profession are to be denounced by scribbling bandits because they feel called upon to defend the honor and integrity of the profession against being placed in the category of solicitors who adopt dishonorable and dishonest practices in order to obtain clients and use the same methods in dealing with those clients after the relation of attorney and client has been established.

The respondents seem not to have taken a single step without having carefully considered every question of legal liability, civil and criminal, that might attach to their acts, and to have hugged the line closely at every point, seeking, however, to avoid liability.

THE RESPONDENT CORPORATION.

With a view of reaching the greatest number of people and of inducing correspondence, two companies were organized—John Wedderburn & Co., and the National Recorder Company, the former for the purpose of soliciting employment as solicitors of patents, etc., and the other to aid in accomplishing that purpose.

The Wedderburn company has a nominal capital stock of \$100,000—\$90,000 preferred stock and \$10,000 common stock. The \$10,000 common stock has the control.

In other words, it may be assumed that Mr. Wedderburn, or a triumvirate, has the controlling power. This stock, according to the showing of the respondents, seems to have been carefully placed in the hands of over 3,000 newspapers or "newspaper men" throughout the country, so that the "plain people" throughout the Union who reside away from the

great commercial marts and highways of commerce and manufacture could be put in communication with Wedderburn & Co., and be advised touching the great opportunities to make a fortune by little inventions, and be induced to believe that they would be advised free of cost as to the patentability of their conceptions or endeavors in the inventive line.

How the newspapers were interested in the ventures of John Wedderburn & Co. is of interest alike to the public and the newspapers holding the relation of stockholders to the John Wedderburn & Co. corporation.

The point was to get into correspondence with those whom Wedderburn referred to, in his conversation with witness Benjamin, as "suckers."

The object was to induce "suckers" to write to the respondent company, if the writer had a conception or thought which for any reason he deemed to be patentable.

Those who wrote to John Wedderburn & Co., had reason to expect free advice in response to their letters; but after being in communication with these would-be inventors, the respondents notified them that their supposed inventions seemed to present "rare merit," but that a search in the Patent Office was essential, which would cost but \$5; and on receiving the stock of literature and encouraging letters, the persons addressed promptly forwarded the money. (Greeley's report, p. 16.)

Thus respondents were, in thirty-three thousand cases, enabled to get a fee in consideration of having a search made that probably cost 25 cents or less, so that a thriving business was done in that behalf.

If the search disclosed what is known as a "reference"—that is, a previous patent or publication which seemed to anticipate the supposed invention of the client—instead of advising the client fully and frankly in the matter, a letter was sent informing him that the inclosed patent is the nearest reference, and without further information from the respondents as to whether the supposed invention was patentable or not, the poor client is left to wrestle with the patent for himself. The reference (i. e., the patent) contains a drawing which not one in a hundred would understand after he looked at it.

But that is not all. In that same letter citing the reference the respondents proceed precisely as if the alleged improvement was patentable, and suggest that they will do everything in their power to obtain a patent and to sell the same.

This communication reaches some farm, store, blacksmith's shop, sewing girl's room, or wherever the unpretentious but struggling inventor lives, and he or she, as the case may be, takes it for granted, of course, that if the device was not patentable, or if it were not a wise expenditure of money to file an application, the trusted solicitor who has said so much about his capacity, experience, purity of motive, and utter devotion to his clients, and has so earnestly cautioned the struggling inventor against patent sharks or unscrupulous sharpers, would, in the conscientious discharge of his duty as an attorney, so advise the client.

But no such candid judgment and advice was given, and in many cases the client, in ignorance of the want of novelty or other patentable merit in the invention, and the impossibility of getting a patent, sends on the money \$20, to cover what the respondents say is for the first Government fee of \$15, and \$5 for a drawing.

And right here is another peculiarity of the practice of the respondents.

Instead of requesting that a fee be sent for preparing the application, including the drawing, they send for the money for the first Government fee, knowing that no fee will be paid to the Government unless the application is filed, but that the applicant is more apt to send the money where the Government demands it as a fee than to advance fees to the lawyer; and so, having received this \$20, Wedderburn & Co., are then in a position to compel payment for the work by retaining that \$20 whether the application is filed or not. It is of a piece with all the rest.

THE WEDDERBURN PRIZE.

Having received the application, to quicken the action of the applicant, Wedderburn & Co., send a letter of extravagant praise, and, as the facts disclose, without regard to the real merit of the invention, extolling the genius of the inventor and suggesting that the invention will prove very valuable if patented immediately and judiciously handled. These letters are substantially the same.

But the respondents do not stop here, but surprise the client by informing him that the merit of his invention is such that he is entered upon the "roll of honor," and, beyond that, that without cost to him, other than the payment of the fees for prosecuting his application, he will be entered for the "Wedderburn prize."

This, of course, coming from competent, able, and conscientious solicitors, who have been indorsed by Senators, Congressmen, and the newspapers, induces the applicant to believe that he has really discovered something remarkable, or invented something of great value, in recognition of which he has

not only been entered on a "roll of honor," but has also, without his request, but because of his exceptional genius, been entered for the "Wedderburn prize," all of which is, in its essence, a plain fraud; but it has put the correspondent in a state of mind necessary for bleeding his pocket.

THE SILVER MEDALS.

Beyond that, if there is any tardiness, in order further to spur the victim to prompt payment, he is, with much literary demonstration, sent a "reward of genius," which consists of a silver medal, inclosed in a box with what purports to be a certificate by the Treasurer of the United States that that particular medal is of sterling silver. (Greeley's report, p. 33.)

Thus the client is given to understand that even the Government of the United States has been at pains to certify that John Wedderburn's medals are of sterling silver.

I will hand the Secretary a few specimens of those medals, said to be a "reward of genius."

It will be noted that the name of the genius does not appear upon the medal, but that of John Wedderburn & Co. does; nor is the invention mentioned, so that the medal could be worn by a man or a dog with equal propriety, and would serve the same purpose as a cheap advertisement for the respondents.

The cost of the medal certainly would not exceed 20 or 25 cents; but its judicious use as a "reward of genius" may enable the respondents to secure a tribute to their genius of from \$25 to \$150.

But the client, the "sucker," as Wedderburn facetiously calls him, is played still further along the line, thus: About the time that the sterling medal reaches the supposed inventor, he or she, as the case may be, receives a communication, without date, from the National Recorder, which announces that the Recorder has learned that the party addressed has been placed upon Wedderburn's "roll of honor," and has received a "sterling silver medal" as a "reward of genius;" and the National Recorder appears to the reader of the letter to be wonderfully wrought up over the discovery of a budding genius of such rare merit; and the Recorder proposes at once to "write up," or have written up, the individual who has won such distinction as to get on Wedderburn's "roll of honor," and to receive a "sterling silver medal" as a "reward of genius;" and the Recorder will, for the small sum of five dollars, insert a cut of the inventor and a brief sketch of his life, and will send the hero a number of copies of the paper, etc., and this of course pays the cost of extensively advertising the respondents. (Greeley's report, p. 38.)

And, so in good time, the Recorder comes out with a whole page of the pictures of these credulous and duped mortals, who have paid \$5 each for this boost up the ladder of fame, and the Post-Office Department of the United States and the Patent Office were for nearly two years the agents and instrumentalities used for carrying on these schemes, to the disgrace of the government.

In this enterprise by judicious advertising and making certain newspaper proprietors, or writers therefor, stockholders of his "joint stock company," Wedderburn & Co. are enabled to reach every neighborhood in the country, and as these poor inventors (or men who are encouraged to suspect they are inventors), scattered from Texas to Maine and from Alaska to Florida, strangers to each other and having no common interest, and remediless, are plucked by schemes, supposed not only to be within the protection of the law but to be sanctioned and aided by some of the Government agencies; and the victims are of course helpless, while the respondents here in Washington, as before stated, utilize the two great Departments of the Government to reach these victims of their rapacity and induce them to part with their money in the manner I have described.

And the brilliancy and pecuniary profit of the achievement have hitherto purchased absolute immunity and even favor.

If it is so in the future with reference to the respondents or any other company, combine, or person adopting and using such methods (and there are many of them), it will be due to gross neglect of duty on the part of governmental officials who are charged with the administration of the law.

So far as the searches were concerned, they were until recently largely searches in form rather than in substance.

It occurs that more than half the communications sent to the respondents describing a device to be patentable, were found to contain something so obviously simple and utterly wanting in novelty that the merest tyro employed to make the searches could discover that they were not patentable.

And even in these cases, instead of frankly writing the truth and advising the client of the fact, as in plain duty bound, and as they had advertised to do, the client is charged \$5 for information that was often worthless, and in very many cases information that would have been useful was conveyed in a way to mislead and to encourage the client to do

the very thing a capable and honest lawyer would have advised him not to do.

ESTIMATE OF VALUE.

As suggested above, on finding a thing was possibly patentable, or, at least, upon reporting that it was probably patentable, the respondents suggest to the client the rare merit or value of his invention, and offer at once to place it on sale; and then, using their so-called "sales department," or "expert in patent values," a vision of a small fortune is created in the mind of the applicant by informing him that their expert estimates the value of the invention to be \$2,000 or \$5,000, or \$10,000, or \$20,000, as before stated.

More definite and ample information was asked for as to the conduct of this promotion and sales department, and the attainments of the expert who could on sight of a drawing or on hearing the description of an invention read fix its probable value with such readiness, and a number of questions were propounded to the respondents, not one of which was answered, but for reasons that seem obvious all information on the matters inquired about in those questions was withheld. (Greeley's report, p. 18.)

It did not require an examination or cross-examination of the expert of the respondents to ascertain the fact that he did not and could not, as no other man could, but he pretended to, know the value or probable value of the thousands of devices relating to different arts and the value of which he fixed, as hereinbefore mentioned.

No twenty men in the country, with their combined intelligence and experience, without full and careful examination, could have given an estimate upon the value of an invention that would have been of value to the client, and especially before its patentability had been ascertained; and yet this individual sat as a kind of oracle, and fixed values without proper knowledge, without needful experience, and, as I must believe, without the slightest concern as to the effect his statement would have upon the client, except to induce him to forward some money to Wedderburn & Co.

To illustrate what I have been saying, I will take up some of Wedderburn's advertisements and literature, and call attention to each sample in the order in which it was sent out, to show just how the scheme was worked and how the clients were corralled.

APPEALS.

But before I take up the literature there is another matter to be noted.

Where an examiner refuses a patent an appeal will lie to the board of examiners in chief.

In case an examiner cited references and reports that there is nothing patentable in the application, it is the duty of the capable and honest lawyer—or the honest solicitor, whether capable or not—to give to the client his best judgment as to the wisdom and expediency of taking an appeal.

This respondents did not do, but advised the client that he could take an appeal, and then suggest how earnestly they will endeavor to reverse the action of the examiner if an appeal is taken; and the cost of the appeal and the fee for prosecuting it are named, and invariably (prior to February, 1897), if they do not covertly suggest the wisdom of an appeal, they seldom, if ever, however bald and absurd an appeal would be, advised the client not to take an appeal. (Greeley's report, p. 50.)

They take the chances of misleading the client and getting an additional fee, and, strangely enough out of all the cases appealed (about 35) in comparatively few of them did the respondents put in an appearance to make an oral argument or file a brief; and their counsel, in a manner as amazing as it was original, cite the fact that the respondents had better luck and won more cases when they did not make an argument than when they did, and offered this result as an excuse, if not a justification, of the failure of Wedderburn to do his duty in that behalf.

It is by no means improbable that in view of the fact that there appears to have been manifested in the conduct of respondents a want of active concern for the interests of the client, it was of small consequence whether in cases on appeal they made an argument or not, and the fact that the arguments they did make were in effect, as they assert, worse than none, forces the conclusion that the respondents were engaged in getting money, and in practicing law as in some measure a necessary incident.

But, however that may be, it shows that the business of the respondents was not to faithfully, conscientiously, and intelligently serve a client, but to get his money and make the professional service a mere incident in some measure essential to the chief purpose.

A few words concerning the relation of attorney and client are pertinent just here. The relation of the solicitor to his client and the obligations resting upon each are involved in this investigation. The relation of the solicitor as a practitioner before the Department and the jurisdiction of the Department

to deal with delinquent solicitors are also involved.

As to the relation of the lawyer to the client, it is needless to say that no higher standard need be required than that proclaimed in the circulars issued by John Wedderburn & Co.

It is a confidential relation; the client should give to the solicitor his confidence, and the attorney is under the highest obligations to give to the client his best efforts and his best judgment, and to act toward him with perfect candor.

This is precisely what the respondents proposed and promised in their literature to do; and they were especially careful to caution confiding citizens against methods and practices which respondents say are too common, i. e., imposing upon the public by flaming advertisements that are misleading, inspiring false hopes, and promising impossibilities, and practicing all the arts that can be used to inspire confidence; and in their circulars they caution the unsuspecting public to beware of such methods and such persons.

This, in them, was hypocrisy's masquerade.

The investigation in this case shows how pertinent and timely such words of caution were, if those to whom they were addressed had properly applied them.

Offensive as it is to good morals, it was urged that so long as the advertisements, circulars, and correspondence in form state the truth, the fact that persons may be, and are, misled by them to their injury is not the fault or concern of the respondents; that they have a right to advertise in any way and to any extent they please.

It is not questioned that they may laud themselves without stint and within limits print and publish what they please; but if, taken singly or as a whole, their advertisements, circulars, and correspondence show a studied plan to secure clients by methods that are deceptive and dishonorable, and to deceive them as to their rights and as to the probabilities of securing a patent; to mislead them as to the value of a supposed invention; to induce them to believe that they have discovered or invented something remarkable, when it should be obvious to the attorney that they have discovered or invented nothing of value; in other words, when the whole plan and purpose, judged in the light and results of all their methods and conduct, leave no doubt that they are conducting a scheme to get money by irregular and reprehensible means, then they have passed the limit which marks the boundary of a proper use of otherwise justifiable and even commendable agencies, and are guilty of gross misconduct.

It is proper to say here that as to the practices, methods, and conduct under consideration, no matter by whom practiced, we are at the parting of the ways.

It is well known that the methods and schemes here condemned are becoming common as a result of the supposed immunity the delinquents find in the money they make and the influence and power the money so obtained will purchase and control.

PATENT SOLICITING.

Soliciting patents and conducting cases for inventors and owners of patents in courts is an honorable employment, and one that requires legal training and integrity; and it is well known that while flaming advertisements and the distribution of self-laudatory circulars are exceptional among capable and honorable lawyers, yet those methods can not be said to be immoral or reprehensible if properly utilized.

But, as intimated above, it is well known that it is common for individuals, firms, and corporations, without having any substantial, much less thorough, fitness for conducting the business they solicit, and without ordinary, much less exceptional, facilities for soliciting patents or selling them, and without knowledge of the value of invention, and without experience, to mislead and impose upon the uninformed and credulous by a system of advertising and newspaper laudation, supplemented by correspondence which has no higher aim or purpose than to filch money from persons who trust them, and without reference to the quality of the service rendered.

In many of these cases the parties to whom I refer, in order to succeed, seem to have done things and employed methods and agencies that barely fall short of subjecting them to criminal prosecution, and in many cases they do violate the criminal statutes of the United States and of the several States, but unfortunately those who do the wrong seem to be above the power of the law, and the poor victims of the wrong appear to be beneath its care.

It is a question now whether these methods shall be denounced and those who employ them be prohibited in future from indulging in a practice so utterly demoralizing and corrupting.

In other words, will the Department compel men doing business before it to observe in the transaction of that business the dictates of common honesty, or permit "rogues within the law" to utilize their relation to the Department for the purpose

of fleecing those whom they are able to dupe and mislead?

The action in this case will establish a precedent of far-reaching influence for good or ill, and the action taken will help to compel the observance of honest methods, or will grant immunity to those who are, to say the best that can be said of them, rogues within the law.

RESPONDENTS' ADVERTISEMENTS.

The following is a sample of the advertisements of respondents:

WANTED—AN IDEA.

Who can think of some simple thing to patent? Protect your ideas; they may bring you wealth. Write John Wedderburn & Co., patent attorneys, Washington, D. C., for their \$1,800 prize offer and list of 200 inventions wanted.

I need not again comment upon the offer of an \$1,800 prize. The "list of 200 inventions wanted" is deceptive and must have been so intended.

If the respondents or their expert had been placed on the stand and asked to name one invention wanted, it may well be doubted if they could have mentioned one.

What was wanted was that the respondents should be employed by persons who might read the advertisement.

The result was that they received thousands of letters of inquiry, and in response sent out a mass of literature of the kind and quality hereinbefore referred to and hereinafter mentioned.

Most of this literature is defended by counsel, and particularly by the counsel who wrote part, if not the most, of it, and who assisted in organizing the Wedderburn company.

He said in his argument that these circulars and advertisements stated the truth, although the manner of stating the truth might mislead the individual who read it. For instance, take the circular "One thousand inventions wanted," and the notice stamped on the letters, "370 patents procured this week; 100 patents sold." What is understood by that? Mr. Wedderburn's counsel says, "As to the 1,000 patents wanted," that simply meant that if a man could invent a good thing it could be sold on the market at a profit.

Nobody doubts that if a good thing is invented and patented it may be sold at a profit; but it was not the intention of this circular to say just that.

The respondents or their employees doubtless went to the Patent Office and read the various classes of inventions and selected and numbered them, and then published in effect in their literature that there were to the knowledge of respondents one thousand inventions wanted, and suggested in effect that there is wanted an improvement in each one of the arts mentioned; and they further suggested, by inference, that there is now a pressing, active demand, of which respondents know, for these various improvements, and that there is a vast unoccupied field open for inventors to produce just what is wanted.

Counsel insists that the circular does not say so. Well, the argument is disingenuous, for the idea intended to be conveyed is just what I have stated, and is the idea that is conveyed to every mind that is capable of receiving an impression.

This circular contains certificates from a number of persons for whom John Wedderburn & Co. are supposed to have taken out patents. The person who wrote the advertisements states in that behalf by way of inducement, that these fulsome letters are "a few extracts selected at random from thousands we have received, all of which testify to the scrupulous care, promptness, and fidelity with which interests confided to us are treated. These pleasant words have come without the slightest solicitation on our part, and are the more gratifying on that account."

I quote this, particularly the last sentence, because so far as I have been able to learn, the business of one of the persons connected with the respondents was to solicit from public men of known probity, but who knew very little, if anything, about the respondents, letters of recommendation, which are afterwards published and scattered broadcast, as if Members of Congress, Senators, and others who signed them, had familiar knowledge of Wedderburn's methods and practices and approved them altogether.

HINTS TO INVENTORS.

Besides the "One Thousand Inventions Wanted," there is also issued "Hints to Inventors," by John Wedderburn, Solicitor of Patents.

This book is written to show what fortunes may be made out of a little invention, and also to show the necessity of employing a patent attorney.

As indicating the impressions he desired to create in the minds of the individual he reached with this literature, he says, in regard to doing scrupulously honest work: "All communications embodying a disclosure of an invention are held by us in strict confidence. A query may arise in your mind as to what would prevent us from taking undue advantage of your confidence in patenting your invention for ourselves. We answer the reputation and char-

acter of our institution, and our unwillingness to destroy our business for the sake of a theft of systematic value."

It will be observed that the respondents state here, in what I am about to quote, the standard by which they desire to be judged when he says: "One betrayal of a client would end our professional career, not only ruining a business as valuable as that of a great bank or trust company, but also bringing our sponsors into irremedial disgrace and subjecting ourselves to prosecution and punishment."

Below on page 9 of his "Hints to Inventors," he says: "We do not try, however, to compete with so-called cheap patent attorneys, nor can they compete with us in quality of work." Hardly.

It is also stated on page 11: "We can say that the special search determines the probable patentability of an invention, and it is rare that a patent is refused on an invention which we report as new and patentable." This was not true in fact, but was intended, of course, to induce each one for whom a search was made and where a favorable report was sent to proceed at once to send on money, as "it is rare that a patent is refused on an invention which we report as new and patentable."

The point is that these searches were induced by unfair and unprofessional means, having first gotten into correspondence with these parties by misrepresentation and holding out delusive hopes, and by suggesting that they will get information free.

The course of conduct of Wedderburn & Co., after correspondence was opened, is shown by stipulations and exhibits filed.

I shall make some quotations from them, as indicating that from the moment the respondents got into correspondence with a client, that client, unless he was exceptionally alert, was mislead and imposed upon.

PRIZE AWARDS.

There is another advertising dodge—a false light on the shore—which, while ostensibly organized and conducted to determine which of the inventions alleged to possess "rare merit" was superior in novelty and usefulness, was really a pretentious humbug and advertising dodge, which, if not used in conjunction with other agencies to mislead, deceive, and defraud, would be pardonable, whether creditable or not.

It was the meeting held from time to time to award prizes, a proceeding with which the names of honorable gentlemen are connected, and connected only for the purpose of creating the impression abroad that men of character, dignity, and familiarity with patents and patent matters had solemnly met, and after laboring with the question of merit, novelty, and value with impressive deliberation, awarded the "Wedderburn prize." (Greeley's report p. 12a.)

And this laughable farce was promptly written up and given wide publicity, as if the respondents were, or thought they were, doing something meritorious.

It would be difficult to conceive of a more pretentious sham, so far as the prime essentials of such a proceeding, conducted for a proper and useful purpose, are concerned. As stated, a dress parade of this prize court was sent throughout the country, supplementing the 25 cent silver medal and the "roll of honor" endeavor.

If it be said that these things were merely matters of taste:

I agree that it is so, but may add that they are of such shocking bad taste, when taken as a whole, revealing a concerted plan to mislead and defraud members of the community, that they should be publicly and privately condemned.

It was earnestly pressed by one of the respondents' counsel, he taking these several things up, each by itself, that it did not constitute such conduct, and was not so misleading or in such bad taste that it could merit anything severer than a rebuke. I may agree to that proposition, but it does not relieve or even help the situation.

It would be just as pertinent, and be an answer as sufficient, to say that where a victim was killed with poison, administered in small doses through weeks and months, that no single dose administered would destroy life.

That might be true in the case supposed, and may be true with reference to single acts in this case, but I am now dealing with the fact that the poison was administered, as a whole, to take the life of the victim.

This poison that I complain of in the case at bar has been administered in broken doses, but following so swiftly on the heels of each other that the party to whom the doses were administered yielded finally to its influence, and the result was that he parted with his money without consideration rendered therefor, or a consideration so grossly inadequate as to make the transaction a fraud on the part of the respondents.

As another means of creating a false impression and working money out of the deceived, and to create a belief that respondents were doing a vast business, not only in making searches and filing applications

but in procuring patents for clients, and an equally extensive business in selling patents, and that patents are easily and readily sold by them, they stamped upon letter heads the following, in large letters:

"Notice: Total number of patents procured last week 370; 100 were sold."

Here again counsel, instead of denouncing this bald imposition, suggested that the respondents did not say in terms that they took out 370 patents, or that they sold 100, but simply announced that 370 patents were taken out and that 100 were sold, and it is doubtless true that the United States did issue 370 patents and that the records of assignments at the Patent Office would show that 100 were sold. Neither the bald attempt to deceive nor the pitiable apology for the deception deserves further comment.

CORRESPONDENTS WITH CLIENTS.

It occurred that thousands of persons, seeing the advertisement for 200 inventions wanted and the offer of large prizes, and an easy way to get money, wrote to the respondents for information, and in reply received answers of the following tenor and effect:

DEAR SIR: We have received your letter of inquiry of recent date, and we herewith inclose copy of our \$1,800 prize offer and our Hints to Inventors, which contain full information as to how our patent business is conducted.

We also send you, under separate cover, a copy of the National Recorder.

If you will send us a sketch of your invention, together with a description or model, if you have one, we will make a thorough examination of the Patent Office records and advise as to whether a patent can be obtained. We charge \$5 for this service, which amount will entitle your invention to be entered in competition for our prizes and will be deducted from our fee for preparing the case.

The letter closes with the statement—

After a patent has been obtained we can place the same before the proper capitalists, if you do not intend to manufacture and market the goods yourself.

This ordinarily brought \$5, which would doubtless yield a clear profit of \$4.75 to the respondents, but if the party addressed failed to respond promptly, a letter of the following tenor was forwarded:

DEAR SIR: We have not heard from you since we replied to your favor of a recent date, sending you our pamphlet and a copy of the National Recorder.

We again ask your consideration of our excellent facilities for selling and procuring patents, and if you have not already selected your attorney, we should be most happy to advise you without charge, either in a personal interview or by mail, as to the patentability and salability of any device which you may have in mind.

This usually brought the required answer. Thereupon the client (?) was sent a letter of the following tenor:

DEAR SIR:

We are in receipt of your esteemed favor of —, inclosing sketch and description of your invention, of which reference has been made to the chief of our sales department, and this is the principal cause of delay in answering. In his expert opinion, a successful device of this nature, if patented immediately and properly handled, would net its owner not less than \$5,000 on direct sale, or yield a good income for several years if transferred on the royalty plan. Its cheapness and simplicity are strongly desirable elements in its favor, as there would be little or no experimental cost to eat up the profits, and a practically unlimited market will be furnished for such a successful device.

There is no doubt of its patentable nature, but you will readily understand that no human being can carry in his head the hundreds of thousands of inventions on file in the Patent Office. For this reason we always recommend our clients to have a special search of the records made, with a view of avoiding infringements on other patents. Our charge for this service is ordinarily \$5 in each case; but we will make two searches on inventions submitted at the same time for \$5; four for \$10, or as many as you please in the same ratio, enter any invention you may select in competition for our monthly prizes, and will further agree to make our subsequent fee for the preparation and prosecution of your case \$20 instead of \$25.

JOHN WEDDERBURN & Co.

This letter was undoubtedly prepared by a lawyer, who had more capacity than conscience; as any expert will see that it affects to say what it does not in fact say, and is carefully worded to mislead.

The language, "In his expert opinion a successful device of this nature, if patented immediately and properly handled, would net its owner not less than \$5,000 on direct sale, or yield a good income for several years if transferred on the royalty plan," is as shrewd as it is uncandid.

Five dollars is received, and a search is made in these cases, and thereupon a letter of the following tenor is addressed to the client:

DEAR SIR: We have made a thorough search of the records of the Patent Office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent, and we therefore have to report that in our opinion a patent can be obtained.

Then he is advised to remit \$20, to cover the first Government fee of \$15, and \$5, the cost of one sheet of official drawing, and this is followed by the statement that—

There is no doubt that your invention is a very valuable one, and that good money could be made out of the same if properly handled.

"If properly handled" always cuts a figure. The letter then states that the invention will be entered in competition for the "Wedderburn prize," and they then propose in the letter to find a purchaser.

After these alluring observations the applicant applies for a patent, which, in the vast majority of cases, he is not entitled to and never gets; and it often occurred that after having stated that the \$5 would be credited on the fee of \$25, we find the full amount of \$25 is demanded and collected. (Greeley's report, p. 40.)

Following in the wake of the other communica-

tions, if the vein seemed to be one which could be profitably worked, a letter of the following tenor was addressed to the client:

DEAR SIR:

We take pleasure in informing you that the board of awards has selected your invention for special merit, and your name will appear on our roll of honor for last month for the Wedderburn prize. Under the terms of our recent decision to recognize those inventors submitting especially meritorious devices, we have determined to present a sterling silver medal to each person entitled to a place upon the roll of honor.

We therefore send you by to-day's mail a sterling silver medal, accompanied by a United States Treasury certificate as to its standard fineness. It is of pure silver, and we regard it as to its standard fineness. It is of pure silver, and we regard it as to its standard fineness. It is of pure silver, and we regard it as to its standard fineness. It is of pure silver, and we regard it as to its standard fineness.

Congratulating you upon the merit of your invention, which promises to be exceedingly profitable to you, we are, with kind regards,

Very truly, yours,

JOHN WEDDERBURN & Co.

Then, as if they had forgotten to mention something of superior advantage which the correspondent was entitled to enjoy, they add the following postscript:

P. S.—The receipt of this medal does not prevent your device from being favorably considered in subsequent contests for the big prize. We enclose a proposition from the National Recorder which we would recommend that you accept, as past experience shows that this publication has been the means of securing good prices for many of our clients' patents.

There probably could not be a more unblushing fraud perpetrated by the use of the same number of words than crops out in this communication.

First, their "Board of Awards," for all practical purposes, was a myth, and their "Roll of Honor" a sham and a pretense, and their "Sterling Silver Medal," eleven thousand of which they sent out as a "reward of genius," was a cheap advertisement for Wedderburn & Co., and contained no reference to the invention, nor yet to the inventor, in recognition of whose genius it was supposed to have been a tribute.

It is neither valuable for the silver nor for the inscription, nor for any one of the purposes for which the client is induced to believe it was sent.

Nor is that all. A certificate as if issued with direct reference to that particular medal by the Treasury of the United States, is forwarded. This is another sham and pretense, which the Government should promptly put its foot upon.

Then comes the postscript, the last part of which is the catchpenny clause.

There is no suggestion in it that John Wedderburn & Co., are the proprietors, for all practical purposes, of the National Recorder; that it is their organ, or that it is in anywise controlled by John Wedderburn; and thus while they use the Recorder to secure business for John Wedderburn & Co., John Wedderburn & Co., are used to secure business for the Recorder. We shall see in a moment how the elements in this remarkable combination act and coact.

The next communication addressed to the client, after the foregoing, shows that the scheme has worked. It recites:

We have received your properly executed papers prepared in the matter of your invention in finger shield. The application will be promptly filed in the Patent Office and the case prosecuted with diligence.

The next communication indicates that the client is becoming impatient, and the cause of the delay is explained. The following letter does the same, and the next calls the attention of the client to the fact that the examiner has "finally rejected the application," and that he has cited one or two patents, as the case may be, and "notwithstanding repeated amendment and argument he adheres to his opinion." There is surprise in the language of the letter whether there was in the mind of the writer or not.

They then state—

The only course now open, should you desire to contest the matter further, is to appeal to the Board of Examiners in Chief. The cost of such appeal is \$25, covering the Government fee of \$10 and our fee for presenting the appeal, \$15. If you desire to pursue the course mentioned, remit the amount above, upon receipt of which we will take the necessary appeal in your behalf.

In some cases they use stronger language and state how earnestly they will endeavor to reverse the action below if the client will appeal.

As stated hereinbefore, they do not give any advice, as in duty bound, as to the propriety or wisdom of an appeal, but encourage the client to go ahead by leaving it to him to judge in a matter where his judgment would really at best be of little value, as it is a matter which the attorney and not the client should in the first instance determine. (Greeley's report, p. 50.)

The statement, "There is no doubt but that your invention is a very valuable one and that good money could be made out of the same if properly handled," is a common form.

It will be observed that they have made 33,000 searches during the brief time that they have been in business, and have filed less than 4,000 applications.

Of these applications about 50 per cent have been rejected by the Office as containing nothing patentable, and yet, notwithstanding all this, Wedderburn & Co., have sent out over eleven thousand of these "sterling silver medals," as a "reward of genius" to the inventor, and as evidence of the superior merit of his invention, which he was assured was of

value, etc., and they have placed, as large, or possibly a larger, number on their fictitious roll of honor.

THE "RECORDER" WRITE-UP.

It seems, if the correspondent is susceptible, or what he writes indicates that he is a proper subject for flattering treatment, immediately on the heels of his receipt of the silver medal and the information that he is now on the Wedderburn "roll of honor," he receives a letter from the National Recorder of the following tenor:

DEAR SIR: The National Recorder is informed that you have been awarded a silver medal by Messrs. John Wedderburn & Co., for an invention of unusual merit entered in that firm's competition. It is the purpose of the Recorder to publish, for the benefit of its readers, a short sketch and likeness of as many of these medal winners as possible, in order that inventors, and those who are striving to become such, may enjoy the advantage of the experience of their successful colleagues.

If, therefore, you will send us a photograph and a brief account of your life, giving special attention to the experiences that have aided you to become an inventor, accompanied by \$5 to cover the cost of preparing sketch, inserting the same in Recorder, and engraving the accompanying portrait, we will write up, and place upon our subscription list for one year the names of any two persons to whom you desire the paper to be sent.

An affirmative answer to this proposition must be mailed within a week after the receipt of this letter to insure publication.

After the National Recorder has expressed or suggested its admiration of the genius and perseverance of the individual who had invented an improvement on a latch string, or a shoe buckle, or a bottle stopper, or a finger guard, or suspected that he had invented something, and had proposed to him for \$5 to publish a sketch of the now thoroughly captivated correspondent, it suggests as follows:

We would also say that when you are prepared to advertise your invention for sale, we will run it free for one month under our head of patents for sale, if you will inclose this letter with your order.

And then the correspondent is warned that—

This combination proposition with regard to a write-up of yourself is the only one we make in this connection.

NATIONAL RECORDER PUBLISHING CO.

Unfortunately for the "client," there is an element in the "combination" with which he does not become familiar until he has parted with his money and has nothing in return except a 25 cent silver medal and a place on the Wedderburn "roll of honor."

THE ASSISTANT COMMISSIONER'S REPORT.

In his report of the findings and evidence, Mr. Greeley has with care and candor gone through the whole range of discreditable conduct which characterized the career of the respondents. His comments are just and his recommendations timely and valuable. I will not review the report, but supplement it in announcing this decision.

I desire, however, to particularly call your attention to Mr. Greeley's findings respecting the conduct of the respondents' sale department and their conduct respecting foreign patents. As is clearly shown in said findings and report their sale offer, and their advice to take out foreign patents were mere traps for the unwary.

The respondents invariably represented to clients that their inventions were valuable and salable, whether in fact they were patentable or not. It only needed the skill and experience of respondents in handling such matters to make the client sure of a good return. But before they could proceed to find a purchaser, \$20 "for advertising purposes" must be paid by the client. This sum was asked for and accepted in a number of cases in which the respondents knew there was nothing patentable and nothing valuable. (See Greeley's report, pages 41-44.)

The respondents also invariably advised their clients to take out foreign patents on inventions which they well knew were unpatentable, knowing that foreign patents, if granted, would be worthless. The taking out of foreign patents meant large fees to the respondents, for which the client received no return. (See Greeley's report, pages 44-48.)

The character and influence of the methods and agencies used by respondents, and their potentiality for evil, become more apparent as the investigation proceeds, and when carefully studied are, in their adaptability for obtaining money under false pretenses and in their tendency to corrupt and degrade the persons and agencies employed, positively startling.

To understand and appreciate all the agencies and means employed, and the purpose and manner of their use (each considered alone harmful only in a degree, but taken together, outrageous and corrupting), it is necessary to become familiar with the entire scheme and the appliances utilized to obtain the desired results.

It would seem to be obvious that there would not be a tumultuous rush from all parts of the country to get stock in the John Wedderburn & Co., corporation.

But it occurred to the promoters of the scheme under consideration that to reach the quiet neighborhoods, where intelligent, enterprising, God-fearing people live, it was necessary to utilize the local

newspapers, and some means had to be devised to reach them.

The proprietors of these newspapers could not very well investigate either the peculiarities or methods of John Wedderburn & Co., as these newspapers are remote from headquarters, but we have the following assurance in the literature published by one, through the procurement of the respondents the assurance being also extensively circulated, at what cost we do not know, that over three thousand newspapers throughout the country are stockholders in the John Wedderburn & Co. corporation; and through these newspapers, which are in the main confessedly innocent of any sympathy with the fraudulent scheme to trick citizens out of their money, John Wedderburn & Co., were enabled to reach the humble homes throughout the country and hold out these seductive, false, and delusive promises. And having in some manner placed some shares of the stock of John Wedderburn & Co. in the hands of this vast number of newspapers, these same newspapers unwittingly aided in fleecing their own subscribers and neighbors.

To accomplish this circulars were sent out broadcast.

These circular letters, a copy of which I will here insert, seem to have induced a great many persons to become stockholders in the John Wedderburn company, if we believe what is asserted in that behalf in his literature.

For instance, we find the following in several papers, among others in Frank Leslie's Weekly, under date of March 11, 1897:

As in the organization of the Examiner Bureau of Claims, so in establishing his own firm Mr. Wedderburn recognized the indispensable assistance of the press, not only in building up a business enterprise by bringing it to the attention of the public, but also by securing the countenance and support of the newspapers themselves by making them his business associates and partners in the responsibility he assumed. It is a remarkable fact that the firm of John Wedderburn & Co. to-day embraces more than three thousand well-known newspapers, all of which are stockholders, and whose vital interest it is, not only to spread abroad the fame of this firm, but also to guarantee to the public the skill and integrity of its management.

These newspapers now have an opportunity to vindicate the integrity of its management. We will see with what promptness they vindicate.

There is then mentioned below a list of newspapers, comprising the leading journals in nearly all if not quite every State in the Union.

The respondents seem to have exhausted their ingenuity to avail themselves of every possible opportunity to prey upon the hopes and desires of well-meaning citizens.

There is no doubt but that Wedderburn & Co., whatever that stands for or means, in a short space of time received money enough to employ many persons who have the genius to write and the conscience to write what the employer demanded, and it was hoped and believed that these 3,000 newspapers were strong enough, if they could be prevailed upon to do so, to uphold and defend the iniquities here described, and thus prevent any interference with the planned system of plunder that promised such great profit, and that any official or individual who dared to call in question their right to practice their schemes would and could be destroyed through the agencies which John Wedderburn & Co., by the means hereinbefore stated, believed they could control.

It remains to be seen whether this is such an utterly venal age that all the canons of public and private morality can be outraged for the purpose of getting any dividend John Wedderburn & Co. could pay, as a result of the successful prosecution of their schemes.

It is proper to say, and nothing could be more timely than to say it here and in this behalf, that if a successful money-getting scheme, without regard to its moral quality or the unworthy methods it adopts, can, by reason of the vast amount of money its methods enable it to collect, defy law, defy morals and go unrebuked and unpunished, we are rapidly reaching the time when men will become a law unto themselves in another sense and manner than that which finds expression in peaceful methods.

It will readily be understood that if there is silence on the part of the newspapers that have helped, though unwittingly, to establish the scheme to defraud, in the matter of condemning the iniquity, we may infer that such conduct is due to the interest which attaches to ownership of stock in the fraudulent agency.

CIRCULAR LETTERS SENT OUT BY RESPONDENTS.

Here are samples of the circular letters sent to newspapers by John Wedderburn & Co.:

[Office of John Wedderburn & Co., (incorporated), solicitors of American and foreign patents, trade-marks, and copyrights, 618 F street N. W. P. O. box 383. Recorder Building, John Wedderburn, president; Wm. L. Ford, secretary; A. L. Hughes, treasurer. Directors: John Wedderburn, patent attorney; Wm. L. Ford, attorney-at-law; A. L. Hughes, attorney-at-law; Wm. L. Crounse, journalist; Thos. B. Crittenden, journalist. General counsel; Wm. L. Ford, John Wedderburn, A. L. Hughes.]

WASHINGTON, D. C., March 16, 1895.

ADVERTISING PROPOSITION.

PUBLISHER.....

DEAR SIR: We have an appropriation of a limited amount for immediate expenditure. In placing our advertisements we

wish to include as many papers as possible, provided we can do so at a very moderate rate. We wish to run a total of 18 inches during one year, the whole of which will be occupied by a four-inch (single column), metal-base electrotype, to appear fifty-two times during the year. We are not particular about location.

For the insertion of the above in your weekly edition, or for the insertion once a week in your daily, we can pay you twelve dollars (\$12), payable as follows: Two dollars (\$2) in cash, payable semi-annually in advance, and the sum of ten dollars (\$10) in preferred 6 per cent stock of The John Wedderburn & Co., corporation, thus giving you ten shares of the capital stock of our company, the par value of which is one dollar (\$1) per share. If you accept this proposition, notify us and we shall immediately forward our cut, together with one dollar (\$1). At the end of every six months we will forward you the stock earned, together with the other dollar. The proof of cut is herein inclosed.

Hoping that you will accept this proposition and that our future relations may prove mutually profitable, we are, dear sir,

Very truly yours,

JOHN WEDDERBURN & CO.

P. S.—We are interested in the success of The National Recorder, a good weekly journal published in this city, valuable to inventors, builders, claimants, and those doing business with the United States Government. It contains a weekly list of patents granted, arranged alphabetically by States, which publishers can use in their respective localities with profit to themselves. We will send you the paper also if you accept the above offer.

(Wedderburn letter head.)

WASHINGTON, D. C., May 2, 1895.

ADVERTISING PROPOSITION.

PUBLISHER.....

DEAR SIR: On account of the gratifying success which has attended the organization of this company, we desire especially to systematize our business promptly and classify our patrons without delay. With a view of completing at once the number of newspapers set as the limit of our plan, we propose to increase the original offer to you.

We wish you to run our 4-inch single-column metal-base electrotype for fifty-two times. We are willing to pay you the sum of \$22, payable as follows: Two dollars in cash, payable semi-annually in advance, and the sum of \$10 in preferred 6 per cent non-assessable stock of the John Wedderburn & Co. corporation, and also give you our promissory note for the sum of \$10 as per inclosed blank form. This note can be used at any time the same as cash in payment of our fee for professional services, such services being performed at our regular charge. If you can not use the note personally, you can easily dispose of it to some inventor for cash by making a slight discount.

A special feature of our offer is a year's subscription to the National Recorder, which we furnish free of cost. The Recorder is designed by its publishers to cover the field of important official information at the capital, and to be of great aid to publishers of newspapers in communities of moderate size. It pays special attention to patents, pensions, and similar matters likely to prove of interest to your readers, and exceptional facilities are afforded you for making immediate use in your own columns of the matter which it contains. The Recorder will publish weekly three special letters, dated Washington, and written from the standpoint of the Democratic, Republican, and Populist parties, respectively. The letters are prepared by able writers, and are offered gratuitously for republication in your columns. In addition, the Recorder prints weekly the full list of patents granted throughout the United States, classified by States, so that you can clip this valuable information and print it in your own columns for the benefit of your readers. The latest court decisions, pension ruling and allowances will also appear regularly. It will thus be seen that the Recorder will make a most valuable addition to your exchanges—furnishing you, in fact, with a first-class Washington service without any expense whatever.

If you accept this proposition, notify us and we shall immediately forward our cut, together with \$1 in cash and our note for \$10. At the end of every six months we will forward you the stock earned, together with the other dollar. A proof of our cut is herewith inclosed.

Trusting that you will accept this proposition, and that our future relations will prove mutually profitable, we are,

Yours, very truly,

JOHN WEDDERBURN & CO.

[Law offices of John Wedderburn & Co., solicitors of American and foreign patents, trade-marks, and copyrights, 618 F street NW. Cable address, "Wedpatent," Washington, D. C.]

WASHINGTON, D. C.

PUBLISHERS.....

DEAR SIR: Being an advertiser in your paper, and thinking that perhaps there may be some inventors in your town with whom you are personally acquainted, we inclose herewith our promissory note for the sum of \$15, payable in professional services by whomsoever presented. This note will be accepted by us at any time the same as cash at our regular rates for securing a patent. We believe that you may be able to discount this note if you should have an acquaintance or find some one who desires to secure the services of a patent attorney. Our regular fee is, including drawings, search, and the prosecution of the case, \$35. Out of this you would get \$15 and we \$20 in the prosecution of any case which you may send us.

We inclose a reading notice, printed in the New York World, descriptive of our prize, the advertisement of which has been running in your paper from time to time, concerning the prize winner for the past month. A gratuitous publication of the same on your part will be greatly appreciated.

Very truly, yours,

JOHN WEDDERBURN & CO.

How the aid of those who personally knew the quality of the enterprise and the means and methods to work it out were secured we are not advised; they must answer at the bar of public opinion for careless conduct or conscious wrongdoing.

In conclusion, I repeat that if the business and the methods and practices of the respondents had been tolerable and of a character that could be defended the respondents and their backers and indorsers would have made all haste to make known, not only to the Commissioner and to the Secretary, but to the public that was interested to know, that they were carrying on a legitimate business in a legitimate way; but instead of that they have made substantially no showing at all, either in extenuation or defense of their offenses or in answer to the questions propounded, which were rendered necessary by reason of the facts hereinbefore recited, and which were not answered nor was one of them answered.

It is proper to state that one of the attorneys said they did not want to publish their business to the world. The answer to that is that nobody asked them to publish their business to the world, or publish to the world any fact or circumstance connected

with the business. It is a matter of public interest to communicate, especially when the method of his business and his business method are called in question by those who are right to require, and in the presence of the honest and the number of honorable citizens that they have been swindled as a result of those methods.

The recommendation made in Mr. Greley's report that the facts shown in this record be called to the attention of the Post Office Department and the District Attorney meets with my hearty approval.

My conclusion is, and I so decide, that John Wedderburn and John Wedderburn & Co. have, as stockholders before this office, been guilty of gross misconduct, and that they should be disbarred from practicing before the Department of the Interior, and I recommend that the honorable Secretary so order.

Very respectfully, your obedient servant,

BENJAMIN BUTTERWORTH,

Commissioner.

Edward T. Fenwick.

The subject of this sketch, Mr. Edward T. Fenwick, junior member of the old established patent law and soliciting firm of Mason, Fenwick & Lawrence, of Washington, D. C., was born in this city on April 18, 1869. The firm of Mason, Fenwick & Lawrence is favorably known throughout the country. It was established by Mr. Robert W. Fenwick in 1861, who associated with him Hon. Chas. Mason, former commissioner of patents and Judge D. C. Lawrence, formerly a member of the



board of appeals and chief clerk and acting commissioner of patents. Mr. E. T. Fenwick became a member of the firm in 1891. He has always resided in Washington where he has many warm friends. He attended the public schools, including the high school and also the Corcoran Scientific school connected with the Columbian University, and graduated from the law department of that institution in 1892; the same year was admitted to the bar of the Supreme Court of the District of Columbia and to the Court of Appeals in 1895. Mr. Fenwick is active in religious work, having been a teacher in the Sabbath school for a number of years, and at present is superintendent of the school with which he is connected.

The firm with which Mr. Fenwick is connected celebrates its 36th anniversary this year, and as a souvenir of the event, has issued a handsomely engraved and lithographed booklet in five colors, which contains extracts from decisions and other information of interest to inventors, patentees, and manufactures, which they are sending free on application. Among the large number of inventors and firms who have secured patents and transacted business through this firm, might be mentioned, Muscatine Oat Meal Co., R. J. Reynolds Tobacco Co., Cameron and Cameron, Gates Iron Works, Buffalo Scale Co., Midvale Steel Co., Union Iron Works, Holly Steam Contracting Co., American Sheares Manufacturing Co., I. A. Williams Headlight Co., McCalve, Brooks and Co., Ellsworth, Potter and Storrs, D. M. Estey, E. B. Hayes Machine Co., Keystone Plaster Co., and the Niagara Paper Mills.

It is reported that work is likely to be resumed on the Hudson River tunnel, to connect Jersey City with New York, which was abandoned in 1892 for want of funds, after over 4000 feet had been tunneled. About \$4,000,000 has been already expended on the work, and it is said that the borings can be completed for \$1,000,000 more. The total length of the proposed tunnel is 5400 feet.

THE wheat crop is short in the Argentine Republic and Uruguay and for the first time in history wheat is to be shipped from California via steamers chartered by Rio de Janeiro merchants. North Dakota wheat raisers will register no kick.

DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Decisions of Commissioner.

Ex parte McCoy; decided July 9, 1897.

ADDITIONAL OATH—DELAY IN FILING APPLICATION.

When an application is not filed in the Office until an unreasonable time after the execution of the oath and the assignee makes affidavit that to his knowledge the invention had not been in public use or on sale in the United States for more than two years prior to the date of the filing of the application and that the inventor refuses to execute an additional oath, Held that said affidavit cannot be considered as a compliance with the rule which requires an additional oath when the application is not filed within a reasonable time after the execution of the original oath, since neither the statutes nor the rules make any provision for the making of an oath to an application by any party other than the inventor so long as the inventor is alive. The reason which makes it necessary that the inventor make the original oath apply with equal force to an additional oath when required.

Ex parte Banes; decided Sept. 16, 1897.

APPLYING AND EXPLAINING REFERENCES BY THE EXAMINER BEFORE FINAL ACTION.

Held that an applicant is entitled before the case is closed before the Examiner to an explanation of the references and their bearing on the claims rejected as full and clear as any explanation that would be considered necessary to be made at any subsequent stage in the progress of the case.

Keller v. Wethey v. Roberts; decided Oct. 1, 1897.

INTERFERENCES—TESTIMONY, EXTENDING THE TIME FOR TAKING—OBSERVING THE RULES OF PRACTICE.

The rule for extension of time for taking testimony is a salutary one, made in the interest of all parties. Where there is an obvious disregard of the rule, there is nothing left to do but to abolish the rule or compel its observance, and there is only one way to accomplish the latter, which is to refuse to permit testimony to be taken when it is not observed.

RULES OF PRACTICE—JUST COMPLIANCE WITH.

It is better to insist upon a reasonable and just compliance with the Rules of Practice of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion. (Citing Smith and Thomas v. Cowles, 30 O. G. 343.)

S. Hershman, Bros. & Co., Ltd. v. J. H. Hargrove & Son; decided Oct. 2, 1891.

TRADE-MARKS—INTERFERENCES—BROAD CLAIM UNDER A NARROW ISSUE.

In interferences in trade-mark cases a broad claim should not be placed under a narrow issue, but the practice in patent cases of making the issue as broad as the broadest claim should be followed.

Decisions of the U. S. Courts.

U. S. Circuit Court of Appeals—Northern District of Illinois. Western Electric Co. v. Western Telephone Construction Co. et al; decided Feb. 10, 1897.

WATSON—TELEPHONE-SWITCHES—VOID.

Letters Patent No. 270,522, granted January 9, 1883, to the American Bell Telephone Company as assignee of Thomas A. Watson, for an improvement in telephone switches, is void in view of the prior state of the art, as it involves only several expedients in arranging a subscriber's outfit.

U. S. Circuit Court—Western District of Pennsylvania. Electric Smelting and Aluminum Co. v. Carborundum Co.; decided July 26, 1897.

PROCESS OF SMELTING ORES—INFRINGEMENT.

Letters Patent No. 319,795, granted June 9, 1885, to Eugene H. Cowles et al., for a process of smelting ores by the electric current, construed and Held that the charge of infringement has not been sustained.

ELECTRIC SMELTING-FURNACE—NOVELTY—INFRINGEMENT.

Letters Patent No. 319,945, granted June 9, 1885, to Eugene H. Cowles et al., for an electric smelting-furnace, was assailed as being void for lack of patentable novelty, but as it was held that it was not infringed the question of patentability was not passed upon.

A Cigarette Roller.

The American Cigarette Tube Co., of this city has lately placed upon the market an attractive novelty in the form of a pocket cigarette rolling device upon which a patent has recently been obtained by W. T. Fitzgerald through patent attorney Joseph Leicester Atkins of this city. It has been remarked that inventions of seeming simplicity are often most meritorious, but it is seldom that a device for which there has been for so long a time such a demand as there has been for a practicable cigarette roller, has finally been produced embodying so much of simplicity in structure and manner of manipulation as this little article.

Everyone who knows anything about such things knows of one or more of the many attempts at a practicable machine of this sort, to use which requires the assistance of an expert, and is equally well aware of the fact that nothing is now on the market that the dealers can be induced to recommend or the purchaser to buy.

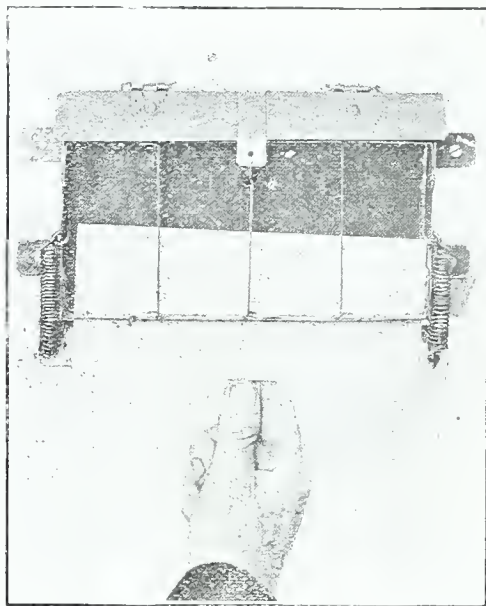
This novel device consists simply of a tube, provided at one end with a hopper for filling it with means along one side for retaining a cigarette paper, and with a plunger for stripping off the finished cigarette. In practice, one edge of the paper is applied so as to be caught by the retaining means upon the tube, and is rolled about the outside of the tube which serves as a rigid unyielding core. When wrapped about the tube the outer edge is moistened and secured to the body of the paper wrapper. The end of the wrapper is then folded

over the end of the tube and the tube filled with tobacco under gentle pressure for the plunger; finally the cigarette is slipped from the end of the tube by continued pressure against the tobacco filling within the tube, the paper wrapper and the tobacco filling, one formed about and the other within the tube, both slipping off together.

M. C. B. Defect Card Holder.

A patent has recently been granted Mr. Thomas Shea of Kewaunee, Wis., on a Railway Card Holder for freight cars, which promises to make some money for the inventor.

The illustration shows a card holder into which a card can be easily and quickly inserted, and from which it can be instantaneously dropped or withdrawn; which is open at the front so as to present a practically unobstructed view of the card; which is provided with a guard at the top for deflecting falling dust, snow and rain; and which is adopted



for attachment to the sill, or other part of the car. By the use of this holder the card can be read at a glance, is protected from mutilation, and several cards can be held by the device at the same time. The movable elements embrace a top hinged guard piece or cover and a bottom support or door. The latter is hinged to the lower edge of the base and its projecting ends joined to the wings by coiled springs which hold the door closed. The clips riveted to the top cover and bottom door may be riveted by a chain provided with a hook as shown. The method of using the holder is obvious as is also its superiority to the present practice of tacking the card to the frame of the car.

Inventions Ahead of Their Time.

We sometimes hear of inventions which have appeared "before their time," and it may be of interest to consider just what it means for an idea to have come into the world before conditions are ready for it. Many ingenious and patient men have worked persistently to develop inventions for which the art was not ready, but which, in later years, when materials, methods and markets had developed, proved to be fully as valuable and important as had originally been anticipated.

The pneumatic bicycle tire would be of little value if the rubber industry were not equal to the production of the proper material from which to make it, and the motor carriage is, in like manner, dependent upon the parallel development of the storage of energy. Professor Langley has shown us how to meet the essentials of a successful flying machine and calmly throws the burden of the commercial success of the problem upon the builders of motors by telling them to go ahead and produce a source of motor power which shall be at the same time powerful enough and light enough to drive his aeroplane without overweighting it. Similar conditions often confront students of applied science, and in many cases brilliant ideas have proved commercially worthless simply because of the practical impossibility of realizing the constructive conditions. There is little doubt that it would prove a most profitable occupation for thoroughly informed specialists to make a study of neglected inventions upon which the patents have expired, and which have never been developed for the above reasons, bringing to this revival of past ideas the present possibilities in the light of more recent developments in science and construction.—*Cassier's Magazine*.

When writing to advertisers please refer to the INVENTIVE AGE; it will operate to the mutual advantage of the reader and publisher.

In Defense of Contingent Fees.

By C. A. SNOW.

Abraham Lincoln, in an address to law students, said:

"As a general rule, never take your fee in advance, nor any more than a small retainer. When fully paid beforehand, you are more than a common mortal if you can feel the same interest in the case as if something was still in prospect for you, as well as for your client; and, when you lack interest in the case, the job will very likely lack skill and diligence in the performance."

Patent attorneys are, with regard to pay, of two classes; those who demand their fee before they begin the work of procuring a patent, and those who expect their fee only after the patent has been procured. There are undoubtedly good attorneys in both classes. There is no virtue or turpitude in the system of either class, though there may be virtue or turpitude in the agent under either system. It depends entirely on the man whether his client will get straightforward advice and faithful service, and not upon whether the attorney receives his pay before or after he has done his work.

The attorney who works for a contingent fee has been the butt of much opprobrium from the other thrifty class that demands its fee in advance, many of them seeming to think it in the line of their duty or interest to declaim against the contingent fee attorneys, to whom they apply the epithet, "no patent, no pay." I have read arguments, so-called, against the contingent fee system, to the effect that the attorney working for a contingent fee will hurry and scurry the application through the patent office, sacrificing the strength of the patent in his impatience to get an allowance and a fee. The inference is that the attorney who has been paid in advance feels good and honest, has money in his pocket, will cease to think of himself and his ease, but, exempt from human frailty, drowsiness, or a desire to go fishing, will devote his time exclusively to buttressing a patent for his client. Well, maybe he will. If he is a paragon, a nonpareil, a phoenix of a man, he may possibly, run better with the goal in his pocket, than when the shining reward is at the other end of the line; but I am singing of patent attorneys, not of gods.

With regard to the charge that contingent fee attorneys are indifferent as to the strength of patents procured by them, I will say that even patent attorneys are selfish, and some of them are wise and far-seeing; and it may be that those contingent attorneys, who, like the rest of the laboring world, from President to scullion, work before they are paid, (the fee-in-advance patent attorneys alone excepted,) know that their work is their best recommendation and are, therefore, jealous of its character and its quality.

If an attorney is honest, he will try to secure good claims. If he is not honest, paying him in advance will not make him so. The payment in advance is a perpetual temptation to report an invention patentable when it is really not so, thus causing the inventor to lose not only the attorney's fee, but the first government fee as well. But if the attorney's fee is dependent on his work in securing the patent, and not merely on his report that the invention is patentable, or, in other words, if he has to get the patent before he gets his pay, he will be more careful about his preliminary examination and report. It seems that one's knowledge of human nature would convince him that an attorney will work with more interest for a fee to be obtained than for one which he has in his pocket. The best lawyers in the country work for contingent fees.

But, after all, it remains with the employer to decide whether he shall pay his patent attorney or anyone before he does his work. For some perverse reason, there is a prejudice against paying for anything before you get it. In the evolution of common sense and business habit, men have learned that the better practice is to pay for performance rather than for promise. Hence, the common laborer, the artisan, the mechanic, the clerk, the clergy, the army, the navy, congress, the supreme court, and the President, do not consider it "unprofessional" to work before they eat.

The popular impression has prevailed that the track of railways must be in rails of moderate length and open-joints in order to allow for contraction and expansion, but it has been demonstrated in Chicago that long stretches of cast-welded track give no trouble, and even up to four miles long continuous welded, the breakage was only $\frac{1}{2}$ of 1 per cent of the joints during the year. The climatic peculiarities of Chicago are such as to afford a fair test and it is likely that hereafter street railways as well as steam lines will adopt the continuous weld system.

NEW INVENTIONS.

Windmill.

The patented invention of Jacob F. Ducker of Argonia, Kans., relates to windmills, and sets forth an idea, in this respect, in which the vanes of the windmill, instead of being of the usual upright, flat kind, are a series of vertical concave pieces arranged around an axis and made to revolve horizontally. This method should furnish a very stable source of power, as seemingly it is compact and not easily broken.

Duplicate Printing.

A duplicate printing mechanism for typewriters, adding machines, etc., has been recently patented by Dorr E. Felt, of Chicago, Ill. This comprises in part pressure feed-rolls for delivering two associated strips of paper to printing devices; ink ribbons with guiding devices located between the ribbon and feed-rollers, acting to separate the paper strips so that they will pass upon opposite sides of the ribbon.

Mailing Machine.

A mailing machine has been recently patented by Charles M. Green, of Highland, Ill. In this there is a rigid frame with a transverse counter balancer grooved tilting bar journaled therein; a series of mail chutes with their forward ends resting on the tilting bar in line with the grooves; guide-ways supported on the frame back of the tilting bar, and a reciprocating slide moving in the guide-ways and carrying drivers arranged to travel under the mail chutes, down which slide the mails when the machine is in operation.

Mud-guard for Bicycles.

In this the mud-guard, supported by arms attached to the front vertical portion of the bicycle frame, extends over the upper front part of the fore part of the fore wheel. It can be folded up, when not in use, by moving the pivoted arms upwards, after the manner of a collapsible buggy top. The patent for this was recently issued to Herbert L. Hall of Rochester, N. Y.

Snow Plow.

Christian Johnson, of Warwick, Minn., has had a patent granted him for a snow plow, which will no doubt find its sphere of usefulness. This plow is to be worked in connection with horse-power. It is triangular in shape and is pivotally connected with a towing sled that runs in front and to which the horses are hitched. There is a rudder, placed in the middle, for preventing the plow from sheering, and extending backwards from the point of the latter are mold-boards for throwing aside the snow.

Bib.

That useful little article, a child's bib, has been improved upon by Harry P. Lenhart of Terre Haute, Ind., to whom a patent has been given for his invention. This bib is intended to afford greater protection to the clothes of the little ones and for this purpose is made quite different from the old fashioned kind. It (the new bib) has spring clamps at its lower end whereby it can be attached to the table; and at the upper end there are hooks for securing it to the child's dress. When equipped with a bib of this kind a child presents the appearance of having a miniature chute before him and so it is, for down this chute grease, milk or other dress staining food can run without touching the child.

Air-power Drilling Tool.

George W. Smith of Topeka, Kansas, is the inventor and patentee of a portable pneumatic drilling tool, which seems a good thing of its kind. In operating this apparatus a fluid pressure chamber is employed, with inlet and outlet passages; a rotatable piston is mounted in the chamber and is composed of two hollow semi-cylindrical portions and two end portions having semi-circular projections forming transverse channels on their inner faces, which are adapted for receiving and guiding a blade mechanism. There are two reciprocating blades movably mounted in the rotating piston and provided with pressure cylinders on their inner ends; a piston in the pressure cylinder of each of the blades, having connection with the fluid pressure chamber of the casings, so that fluid pressure may operate the blade pistons; and a spring mechanism

is inserted between the blade pistons to hold them apart.

Street Car Track Sanding Device.

To prevent the slipping of wheels on a car track, Louis A. Lucier of Worcester, Mass., has invented and patented a device, which will perhaps be of much value for the purpose specified.

The track sander is located under the car, near the front wheel and just above the rail. It has an inclined bottom, a series of radial arms, working in the body of the receptacle for strewing the sand, and is connected to the car wheel by sprocket and chain by which means the sand strewing arms are operated. The apparatus is worked from the car platform by a lever, which releases or shuts a valve.

Water Cooling Apparatus.

A self-cooling water apparatus is the recent patented invention of Louis R. Alberger, of New York, N. Y. This consists principally of a tower, water-motor and supply pipes. The latter convey water from and to a reservoir, furnishing power to the water-motor which in turn moves a cooling fan situated in the top of the tower through which the water circulates in the cooling process. This apparatus is also for condensing water, the fan supplying the cooling quality to the jet condensing-chamber represented in the tower.

Churn and Butter-Worker.

Hans J. Anderson, of Lake Mills, Wisconsin, has been given a patent for a combined churn and butter-worker. The receptacle in this is arranged horizontally, having a shaft notched at its outer end, and carrying a dasher on the end within the churn. The latter is operated by a wheel connecting with the horizontal toothed dasher shaft; and when the butter is churned it can be pressed back and worked against the back of the receptacle, by operating the wheel upon the shaft ratchet arrangement.

Roller-Bearing.

A roller-bearing axle hub is the newly patented invention of Joseph B. Baker, of Naples, Tex. In this the hub contains a sectioned sleeve and tapering rollers set at an angle at each end of the hub, and working in seats. With these are boxing sections located outside of the sleeve and bearing against the rollers, the boxing sections being provided with projections to prevent them from turning within the hub.

Furring-Holder.

A good device for securing furring to walls has been patented by William H. Barnes, of Rochester, N. Y. It consists of a corrugated metal sheath to be built into the wall; the nail enters this and is held securely by the corrugations of the metal case.

Automatic Governor.

An automatic governor for steam engines, invented in France, has been lately patented in this country. This consists mainly of a balance wheel, transmitting motion to a driven shaft through yielding connection with a plate in the shaft; a shaft bearing the plate and carrying gears meshing with teeth, carried by the valve and also with those of a valve-controlling sleeve revolving in a threaded portion of the driven shaft.

Lamp For Acetylene Gas.

This is the patented invention of Charles W. Beck, of Chicago, Ill. The lamp has two compartments arranged one above the other. In the top compartment is contained the carbide; in the bottom, the liquid; and a spring actuated feed-screw in connection with a piston, supplies the liquid to the carbide in a continuous flow, by means of pressure. The top of the lamp is covered by an oval hood containing a short chimney and an outer convex glass front.

Lock for Elevator.

An elevator lock, operated in connection with the elevator metal rope—on which is a rocking-rod with radial arms for contacting with the floor doors when they are opened—is the recently patented invention of Michael J. Daly, of Pittsburg, Pa.

Wheel Plow.

William M. Bomar, of Spartanburg, S. C., is the inventor and patentee of a cultivator or wheel plow. In this there are a beam sweep, and an angle bar passing the rearward end of the beam at an angle

and extending upon both of its sides. The angle bar is bent to form sections parallel with the beam, on opposite sides and at equal distances from it, the ends of the bar being brought back, lapped and fastened to opposite faces of the beam. A gooseneck is bolted to each parallel section of the bar, an intermediate gooseneck is secured to the beam at its rear end, and plows carried by loops, are bolted to the goosenecks.

Rain Apron Fastener.

A fastener for rain aprons on vehicles has been patented by Albert F. Brandenburg, of Dayton, Ohio. This consists mainly of a metallic plate bent upon itself to form an intervening space for catching the edge of the apron, and provided with openings and a hook for engaging the edge of the dashboard.

Can-Holder.

Emma Brown, of Freeport, Ill., is the inventor and patentee of a can-holder, which is made of wire and is in two sections hinged together at the back. The holder is circular in shape—to fit the can—and is manipulated by means of two handles, each formed by a separate section of curved wire rod extending in front. This can-holder should be a useful adjunct to the housekeeper's store.

Time Stamping Mechanism.

A unique and useful piece of mechanism is that for which a patent has been recently granted Charles Stahlberg of New York. This concerns a stamping apparatus, whereby dates can be accurately imprinted from day to day without other bother than merely winding up the machine. Clock-work mechanism is used in this for furnishing power and means of operating. The time stamping outfit consists further, in part, of date units and date tens wheels bearing sets of indices having two figures "1" at the beginning of each set; actuating segments for type wheels (used in printing); a motor train, mutilated gear for rewinding the segments of the unit wheel driven from the motor train, also for rewinding segment of the tens wheel driven from the units wheel, and locking and releasing levers. The latter is so arranged that at the tenth and twentieths days of the month its release causes the skipping of the extra figure "1" on the units wheel and the advancing of the second figure "1" on the tens wheel to the printing point.

Fish-trap and Boat.

George W. Nelson of Five Forks, Pa., has invented and patented a combination fish-trap and boat, by which means one can go fishing without rod, line or net. The outfit consists of a flat boat having a hole in its bottom, with four uprights around the hole. Between these a cage slides up and down, operated by chains, sprocket-wheels, pawls, crank, etc. The fisherman has only to let down his cage and wait at his ease until the fish have gotten into the trap. Then he easily pulls the latter up, deposits its load and waits for the next load.

Novel Key Guard.

A novel, simple and efficient key guard has recently been patented to Ambrose J. Welker, of Hellertown, Pa., in the United States & Canada, through O'Meara & Co., Attorneys of Washington, D. C. The device is composed of only three parts, and can be attached to any door, in connection with any of the locks now in use, inasmuch as all of the parts are adjustable to conform to any size door, lock or key. The guard can be quickly thrown into use when desired, and when in use it is impossible to either turn the key or push it from the lock. It is therefore impossible to pick the lock while this guard is in use.

Laird & Lee announce the immediate publication of "Won by a Woman" one of the most striking stories of Italian Life by Edmondo de Amicis, the world-famed author of "The Heart of a Boy." This dramatic novel will be issued in most dainty size and binding and with numerous illustrations, expressly made for this translation, by an eminent Italian artist.

"Herrmann the Great." His Life: His Secrets, by H. J. Burlingame, with 43 illustrations and 50 startling descriptions of famous tricks that have puzzled the whole world; among them the Vanishing Lady, the Decapitation, the Flying Cage, the Cocoon, are marvelous in ingenuity. A great many tricks in this book can be performed in a parlor with very little practice. Beautifully bound in Holliston cloth, rough edge paper, polished red top, \$1.00. (Laird & Lee, Chicago.)

The Tacoma Fly-Wheel Accident.

"Power" for August contained the following account of the terrific wreck caused by the breaking of the monster fly-wheel in the power house of the Tacoma Electric Railway Co. on July 11th:

About 1 o'clock in the afternoon a small pin in the upper end of the rod connecting the governor ball to the bell crank which actuates the governor rods of one of the engines in the power house of the Tacoma (Wash.) Electric Railway and Motor Company, became loose and worked out. This prevented the governor from controlling the supply of steam to the engines without allowing of the action of the automatic safety device, which would come into play when the governor falls below its running plane, as by the breaking of the governor belt. The engine, released from the control of the governor, commenced to race. The engineer tried to close the throttle, but the speed attained was so great that a rupture of the fly-wheel was imminent, and he left the throttle and ran for the stop-valve, between the engine and the boiler. He had hardly left the engine room before the fly-wheel went to pieces, hurling fragments of the rim for a distance of half a block, cutting out a strip of wall as shown in the engraving and demolishing the roof. The piece of rim in the foreground of one of our illustrations weighs about a ton, and landed about 180 feet from the engine. The photographs from which our engravings are reproduced were taken immediately after the explosion and kindly sent to us by Mr. J. G. Leppen. We are indebted also to Mr. J. C. Corwin for other particulars.

The engine was one of two tandem Corliss, 30 and 44 by 48, built by the Frick Company of Waynesboro, Pa., and described in our issue of November, 1891. The wheel was 25 feet in diameter, 72 inches face, and weighed about 50 tons. The accident is another commentary on the recklessness of putting up large engines without any means of controlling or stopping them in the very likely event of a deranged governor except a throttle valve, to operate which a man must stand directly in the line of the fly wheel. Had the engineer remained at the throttle it is entirely probable that the wheel would have gone before he could have got it closed sufficiently to have prevented further



VIEW OF POWER HOUSE, SHOWING BREAK IN FRONT WALL.



VIEW LOOKING IN POWER HOUSE THROUGH BREAK IN WALL.

acceleration. Had the source of trouble been apparent at the instant it might have been possible to have thrown the bell crank over and controlled the engine by manipulating the governor rods, but a secondary governor set to trip a stop-valve if an excessive speed is maintained, or more simple still, a quick-closing stop-valve which could be operated from a point outside the danger line would have saved some \$20,000 worth of property and a serious interruption to the business of the company. Fortunately no lives were lost, although bricks and fragments were thrown to a distance of 300 feet, and several pedestrians slightly injured.

Highest Building in the World.

Architect George Sage is preparing plans for a fifty-nine story office and studio building to be erected in the central part of New York City. The estimated cost of the building will be from \$12,000,000 to \$15,000,000, which will be furnished by a syndicate of Englishmen, who want to own the highest building in the world. The building will be 300 feet square. There will be five electric elevators, which will run upward through the center of the building at the speed of express trains. Water for the upper floors will be forced up by means of electric pumps in the basement. The building will have its own electric fire department.

Window Ventilator.

George B. Pattison of Trout Run, Pa., is the inventor of a ventilating device to be placed in windows that ought to meet with favor on every hand and offer a splendid investment for some enterprising promoter. Probably more sickness results from imperfect ventilation and impure air in dwellings, factories and school houses than from any other source. The Pattison system is simple, can be applied to any building and at a nominal cost. The inventor will furnish full information.

One of the few trades in the world that is controlled by the laborers themselves is that of emery quarrying. There is but one known mine in the world, and that is operated and owned by the miners themselves on the co-operative plan. There are about 300 men engaged in the trade, all of whom have to be married before they are admitted to the faraternity.

Air is injected into bread dough during the process of mixing in a new machine so that the dough will rise by the expansion of the air when heated, thus doing away with the use of yeast in raising the bread.

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DEPARTMENT NOTES.

Under this heading will appear the latest orders, amendments to the rules of practice before the Patent Office, list of disbarred attorneys, and bulletins of instruction issued from the Patent Office for the observance of patent attorneys and information of inventors.

Commissioner Butterworth Upheld.

Judge Cole, of the District Supreme Court, on Oct. 11th, dismissed the petition of Charles C. Bulkley for a writ of mandamus, compelling Commissioner of Patents Benj. Butterworth to furnish copies of certain records in the patent office. It was represented that the copies were needed in evidence in a trial pending, involving the right to a patent pertaining to a telephone switchboard. The commissioner in his answer said he had acted wholly within the power and discretion vested in him, and further that a sufficient showing had not been made that the records sought were material evidence. For that reason he denied the application to inspect the records and to furnish a copy. Judge Cole said the commissioner in his answer had shown a willingness to furnish the copy upon a proper showing that it was material as evidence, but that showing does not appear to have been made, he said, and the application for a writ of mandamus was dismissed. W. A. Megarthy, law clerk of the patent office, appeared for the commissioner.

Payment of Fees.

The commissioner has ordered that hereafter fees intended for entry on the day of payment must be paid to the financial clerk before 3 o'clock p. m., in order that his accounts for the day may be balanced before the office is closed.

Attorneys Disbarred.

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The "Book of the Royal Blue," issued by the Passenger Department of the Baltimore and Ohio R. R., has made its initial appearance with the October number, and is, undoubtedly, the most creditable magazine of its nature published. Aside from being a model example of modern typography, it is most interesting as to its contents. A field for interesting literature is certainly offered by the Baltimore and Ohio R. R., because it is the oldest railway in the United States; is foremost in historical prominence, and is rich in magnificent scenery. The latter especially affords an endless scope for illustrations, and the magazine has started on its venture with all these points full in hand. Copies can be obtained by enclosing four (4) cents in stamps to the Advertising Department, Baltimore and Ohio R. R., Baltimore, Md.

Ever on the alert for the old veterans, the Hon. Patrick O'Farrell, the well known Washington pension and patent attorney, recently appeared as associate counsel in the prosecution of ex-city Judge Hershel T. Smith, of Fort Worth, Texas, charged with forging the name of Lawrence Ring to pension checks and appropriating the money to his own use. After a stubborn fight in the United States court Mr. O'Farrell succeeded in convicting his man—who gets three years at hard labor in the penitentiary.

W. Ross Wilson has been appointed manager of the Baltimore branch of the American Type Founders' Company and Mr. E. P. Suter has been promoted to the management of the Philadelphia branch. Mr. Suter has been connected with the company since 1881 and through his well-directed efforts the Baltimore house has become one of the most important composing the trust. He is popular with the newspaper publishers and a tireless worker.

Jacob E. Leonard, of St. Peter, Minn., and W. H. Sherrod, of Columbia, Tenn., who were disbarred some time ago have been reinstated.

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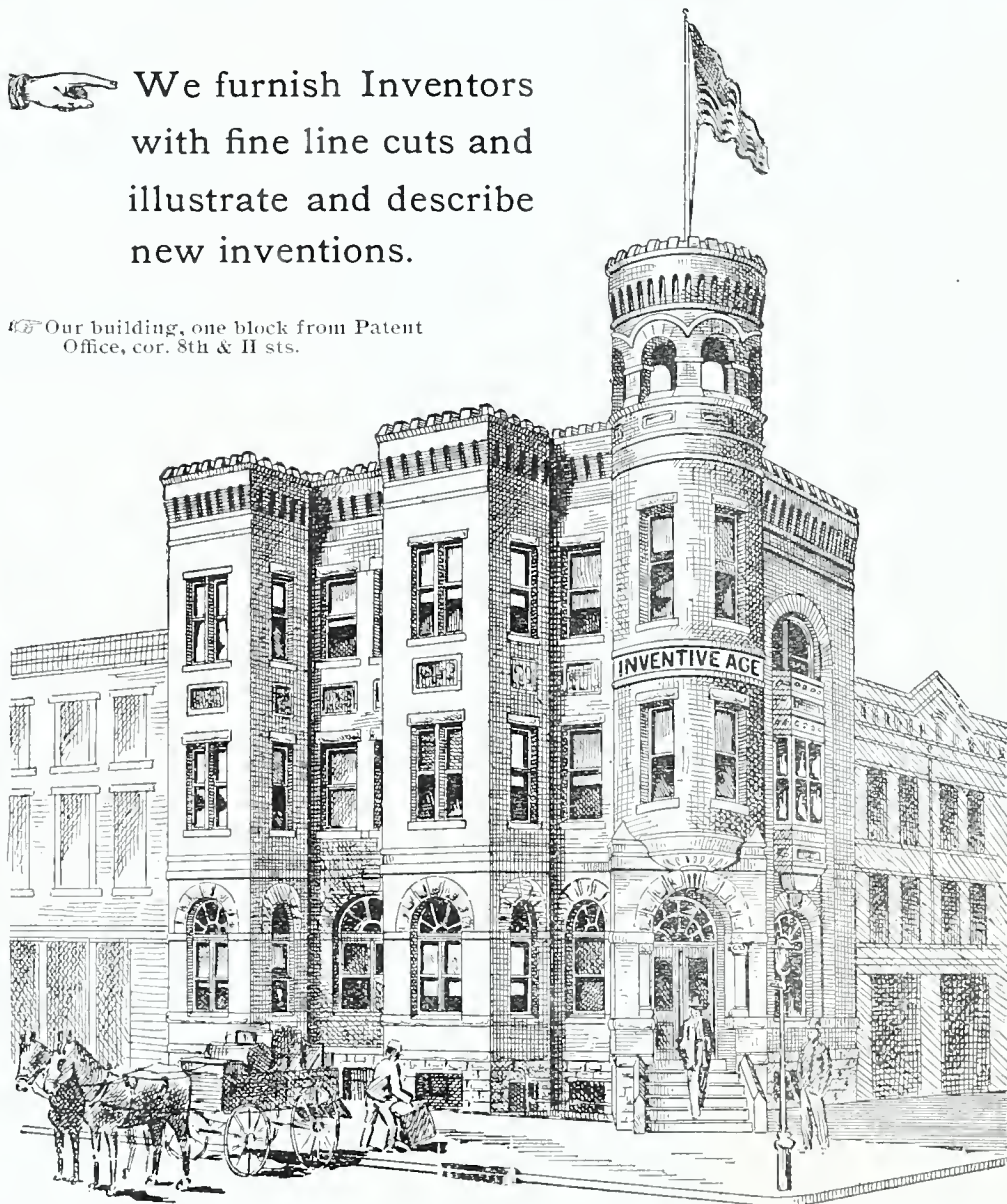
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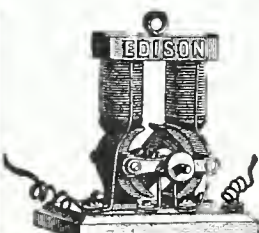
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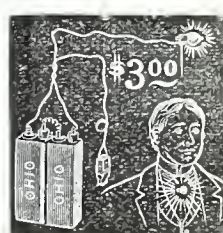
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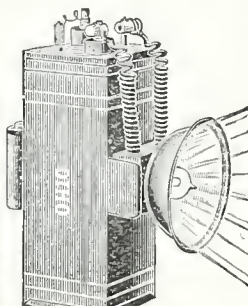
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Search Light and Modern Warfare.

There is no knowing what we may hold Sir Humphry Davy responsible for in the future. As inventor or discoverer of the principle of arc lighting, he can hardly be blamed with intentions that are heartless, cruel or destructive. Yet it seems that the arc light used in the form of a search-lamp may lead, in case quarrels arise between powerful nations, to considerable rapid firing and dynamic battles. The original arc lamp was of simple construction, being merely two carbons separated by hand. In its more improved form it became automatic, burning for eight or nine hours, turning

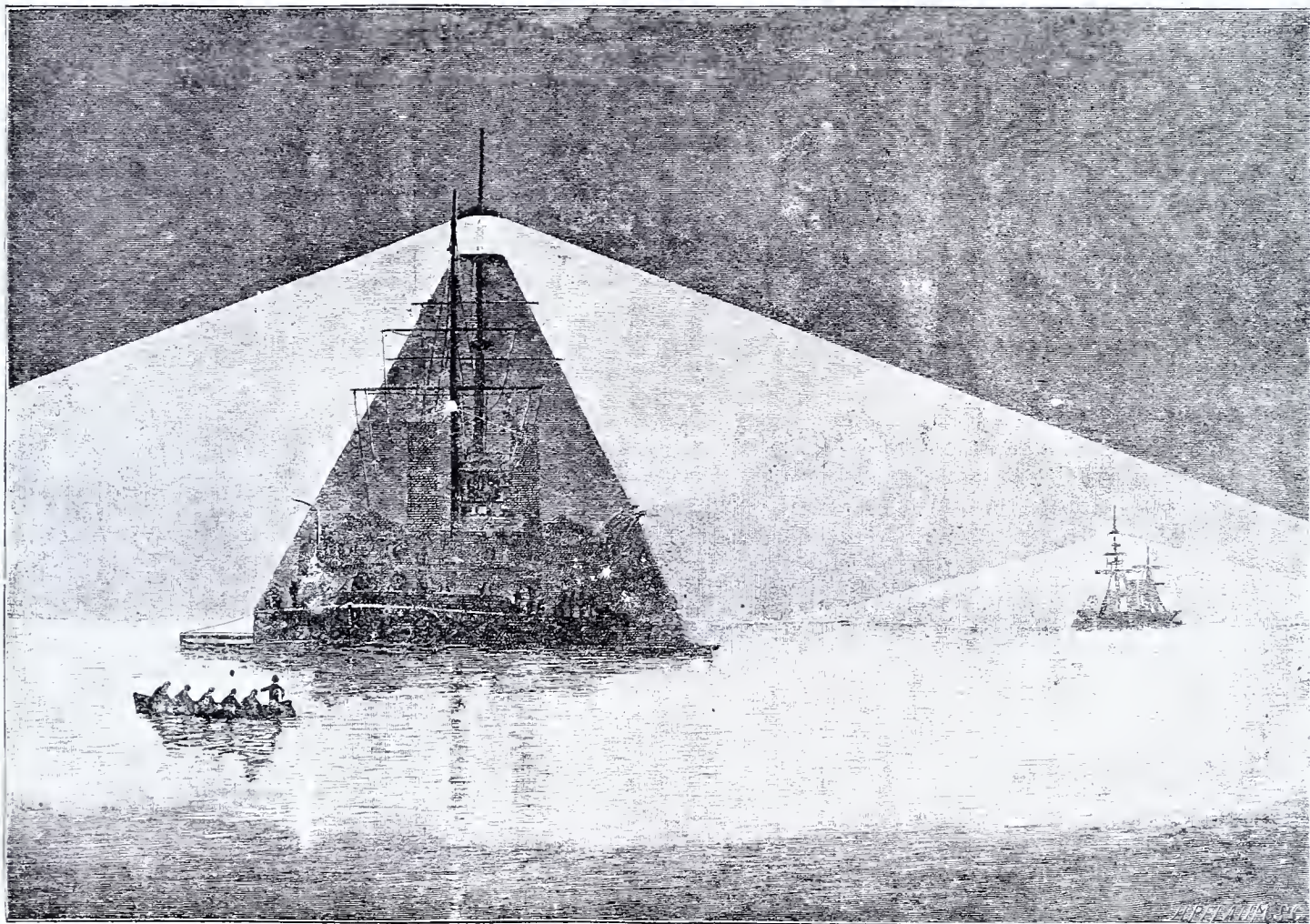
absolutely incomprehensible to those who have lived in the days of wooden cruisers and heavy iron hulks. Sir Humphry Davy invented the miner's lamp that has saved many lives from the horrors of fire-damp, yet the arc lamp equipped for warfare may guide many a speeding bomb on its path of destruction.—*Electrical Age*.

Cast Steel Superior to Forged Steel.

Dr. Gatling, who is just now watching the progress being made on his new 8-inch cast steel gun now in use by all the great navies of the world

but little resistance. Another remarkable thing about the cast steel submitted by this company, it cannot be bored or filed. Armor plates will have to be so cast that the pieces may be attached by clamps or other means than that heretofore employed.

Another remarkable test was made by the government at Indian Head recently and resulted in an order for cast steel shells amounting to \$150,000 from the Isaac G. Johnson company of Spuyten Duyvil. Mr. Johnson presented specimens of cast steel sheels, which, fired under the same conditions as the ordinary forged steel sheels, made their way through the armour plate without difficulty—leaving a clean, smooth hole—while the forged steel



OPERATION OF SEARCH LIGHTS ON MODERN WAR VESSELS.

the hours if night into day. Engravers found in it a means of continuing their work, independent of sunshine, thus giving the focussing-lamp life and history. The United States Navy sees in its use in the guise of a search-light great possibilities. A netting and search-light are in fact more valuable to a war vessel at night than the greatest Krupp gun ever built. War vessels can sight and signal each other by means of a search-light. There may be a time when bombardments will take place between shore and ship, long after the gloom of night has fallen, by its aid. With far-fetching guns and the penetrating beam proceeding from these powerful lamps, warfare will be conducted on new lines,

be discovered for casting steel that would be much tougher and stronger than forged steel. The experimental gun he is building is based upon the theory that a cast barrel will be much stronger and more serviceable than the built-up, or jacketed gun now in use by all the great navies of the world.

In this connection it may be said that Mr. Wm. B. Middleton, general manager of the Taylor Iron and Steel Company, High Bridge, New Jersey, recently submitted for government test, samples of cast steel plate, of 1-inch thickness, which successfully resisted the 1-pound missiles of the Hotchkiss gun. The shells could not penetrate this armour while forged plates of that thickness would present

shells made a ragged hole, a sort of mushroom hole, so to speak. In all instances the forged steel shells were completely ruined, while the cast steel specimens, many of them, were comparatively uninjured.

Recent advices from Sweden are to the effect that the same discoveries of superior cast steel have been made in that country and it is not unlikely that a complete revolution is at hand in the treatment and use of steel for death-dealing as well as life-protecting purposes.

A survey of the Delaware River, with a view of making a channel of 30 feet depth from Philadelphia to the ocean is in progress. It is estimated that the work can be done in five or six years for about \$3,000,000.

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WASHINGTON—NEW YORK, NOV. 1897.

INVENTORS and others who have reason to believe they have been doing business with unreliable patent agents should communicate with the INVENTIVE AGE.

THE Iron Trade Review of October 28th gives an exhaustive account of the recent meeting of the Western Foundrymen's Association at Cincinnati. C. A. Sercomb, of Milwaukee is president and A. Sorge of Chicago secretary.

AS this issue goes to press Benjamin Butterworth, commissioner of patents, is very ill, with an attack of acute pneumonia, in Cleveland, Ohio. His physicians were hopeful of his recovery however, and his friends everywhere hope his life may be spared. His death would be a calamity such as the passing away of few public men would equal.

It is proposed, seriously we understand, to symbolize the great iron industry of this country by the erection, near Pittsburgh, of a gigantic statue—a monument to the memory of Tubal-Cain. Iron, not gold, has made the United States prosperous and independent of all other nations and a monument of the nature indicated would be a fitting reminder of this fact for all time.

MR. WEDDERBURN did not lack for eminent counsel to defend him before the patent and post-office tribunals. He was represented by judge Jere Wilson, William L. Ford, and R. Ross Perry. The patent attorneys of the District, as well as the Patent Law Association, took part through legal representatives in pushing the case against Mr. Wedderburn in both the interior and post-office departments, Mr. Wm. W. Small, making the principal argument for the prosecution before Assistant Postmaster General Tyner.

"ELECTRICAL ENGINEER" points out the fact that the change from the sprocket to the gear in bicycle propulsion, inaugurated by the Pope Company, is in line with the experience of Van Depoele in electric street car motors. This inventor first used the chain gear, then the double reduction gear, and finally the single reduction gear now in use. Thus it seems that the practicability of the system had been demonstrated even before Pope's application of it to the bicycle, although on account of minimum weight of all attachments desired, the test is more severe in the bicycle than in the street car.

ILLUSTRATIVE of the burdens of taxation in other countries Consul Monaghan, of Chemnitz, sends in the information to the department of state that beginning January next, a special tax amounting

to about 1 per cent on all amounts turned over each year will be levied against merchants, foreign and domestic, doing business in that city. American houses, not selling, but buying simply, have to pay just the same as others, and in addition representatives of American houses have to pay an income tax the same as the natives. All of this tends to increase the cost to the consumer of foreign goods, which furnishes an argument in favor of home manufacture and acts as a stimulus thereto.

THE recent electrical and engineering exhibition held in Sydney, Australia, is the subject of an interesting illustrated article in the *Electrical World* of October 30th. Australia affords a splendid field for American enterprise and should be more generally taken into consideration by American inventors in taking out foreign patents. The characteristics of the Australian people are similar to those of Americans and a most friendly feeling towards our people exists in all the Australian colonies, especially in Victoria, of which the city of Melbourne is the metropolis. Our manufacturers should pay more attention to exhibitions of the character of the one in question and make a more persistent bid for the trade of a friendly people who speak our language. In the recent electrical exposition it is said the display from America was meagre compared with those of Germany, England and France.

GOVERNMENTAL control and absolute ownership of railroads is up in Switzerland, where the proposition of the government is to buy the 1,580 miles of the six lines in operation at a valuation of \$186,126,000, which is about \$19,300,000 less than the value claimed by the railway companies. Minister Leishman, of Berne, says that the general plan of the Swiss government is to purchase the railways at twenty-five times the average net annual earnings for the past ten years, providing this is not less than the actual cost. The companies have the privilege of deducting surplus capital, but must turn over the roads in first-class condition. It is on this point that trouble will probably arise, the government claiming that first-class means practically new, while the railroad companies claim it means that the roads shall be in good operating condition. If the bill becomes a law, the matter will probably be referred to the federal courts for adjustment.

THE Patent Office Official Gazette of October 27, 1897, was the bulkiest issue ever printed, containing 288 pages. But the lithography on this issue and the enormous addition of work to the regular run didn't bother the publishers, the Norris Peters Company of this city, probably the best equipped institution for this peculiar class of work in the country. The cause of the extra size of the Gazette in this instance was the granting of 125 patents to one man, Milo G. Kellogg of Chicago, relating to improved ways of operating switchboards in telephone exchanges. The government fees for these patents amounted to over \$4,000 and Mr. Kellogg's attorneys, Messrs. Baldwin, Davidson & Wight of this city received fees close up to five figures. The whole set of patents has been assigned to the Kellogg Switchboard and Supply Company of Chicago and in this connection it may be proper to call the attention of inventors to the seeming importance attached by the inventor in question, and the company behind him, to the necessity of securing claims on modifications in detail rather than mere mention thereof in connection with the device being patented. The increased cost is, of course, considerable, but where an invention promises to be of great importance complete protection can only be secured in this way.

A CORRESPONDENT in the *Scientific American* of recent date wrote interestingly of "Needed Patent Office Reforms," but, by implication at least, did some injustice to the patent office authorities. The correspondent criticised the delay of three, and sometimes four months before action is taken on filings, and asked "why it was that \$5,000,000 surplus to the credit of the patent office was lying

idle when it might be expended in increasing the force of examiners." The answer is that while it is true that something like \$300,000 is being added to this enormous surplus fund annually by the inventors of the world, it is not at the command of the patent office officials. Congress provides specifically just how much shall be expended in each branch of the service and also prescribes the number of the force in the office and the salaries. The office has no discretionary powers. Congress is slow to act on the needs of the office notwithstanding the fact of the enormous surplus to the credit of this department—the only self-sustaining and revenue-paying bureau of the government. Time and time again the patent officials have petitioned for more suitable means of transacting the increasing business of the office, but the deaf ear has been turned by congress. Our law-makers seem content that we have now the best patent system on earth, rather than consider the means of still greater improvement. With the hearty co-operation of inventors and manufacturers and of organizations of these people, and of the Patent Law Association, it is likely the forthcoming recommendations of the Commissioner of Patents to congress may be followed by favorable and intelligent action.

Fraud Order Against Wedderburn.

As a result of the investigations of the post-office department the post-master general on the 6th inst. issued a fraud order against John Wedderburn, John Wedderburn & Co., and the National Recorder, a weekly newspaper published by and in the interest of the Wedderburn patent claim business. The operation of a fraud order is to debar, immediately upon its issuance, the person against whom it is directed from the use of the United States mails, so far as it concerns the delivery of mail matter. All communications received at the Washington post-office addressed to any of the parties named in Postmaster General Gary's order will be returned to their senders, with the word "fraudulent" stamped upon the envelope. Where the address of the sender cannot be learned by the usual means, the mail matter will be turned into the dead letter office. Money orders will be returned, with notice of the department's action, to the postmaster at the mailing office. This is the closing scene in one of the most celebrated cases that has ever come before the departments, or in which a fraud order has been issued. This action is a fitting sequel to the action of Commissioner of Patents Butterworth, in disbaring Wedderburn from practicing before the patent office. The action of the government in this case must result in great benefit to the patent system and tend greatly to improve the patent practice. It is a warning to all that fraudulent practices must cease—that unsuspecting inventors can no longer be made the common prey of unscrupulous adventurers, who do not hesitate in making any sort of misrepresentation in order to filch money from them. It means that the government will not continue in partnership with frauds and fakirs.

A NEW YORK inventor contributes in this issue a communication in which some reflections are cast upon the rules and management of the patent office and incidentally patent solicitors as a body are condemned for not effecting certain changes which "Inventor" considers would be reforms. This is not the first communication of this nature received by the INVENTIVE AGE and some have been more pronounced in their condemnation of the present patent system than the New Yorker, whose communication appears in another column. We print in this same number a communication from Mr. Frederick W. Winter, one of the examiners of the patent office in reply to "Inventor" which explains exactly what the procedure of the official examiner of the patent office is, and in which it is mildly hinted to "Inventor" that he is laboring under a misapprehension of the patent office practices and a misconception of the character of the men he is assailing. These communications will be read with interest.

VIEWS ON PATENT LAWS.

Recently P. W. Gates, chairman of the committee on patents and patent laws of the National Association of Manufacturers, addressed a communication to patent solicitors and others of this country and in some parts of foreign countries, asking their opinions on six special subjects enumerated concerning the charge, by this government, of an annuity on patents, trade-marks, etc.; the unreciprocal relations suffered by American patentees in paying annuities in foreign countries, while foreigners in the United States pay only the first cost; the question of having separate courts for adjudication of patents, trade-marks, etc.; the desirability of any change in the patent office proceedings relative to procuring patents; the question of having an international agreement and what action this government should take with countries that allow goods to be imported and sold within its borders that are marked or represented as having been manufactured in the United States, and sold under American names, trade-marks and brands, but which in fact, were manufactured in some other country than the United States. Doubtless hundreds of replies will be received to this communication and as it is one in which all readers of the INVENTIVE AGE are interested, we are pleased to publish the views of some of its readers and advertisers. A communication appears herewith from the well-known firm of Alexander & Dowell, of this city.

P. W. Gates, Esq.,

Chairman, Chicago, Ill.

DEAR SIR: Our views upon the various points mooted in said circular letter are briefly as follows:

First. It is certainly desirable, in our opinion, that some means be devised whereby the large number of outstanding useless patents can be put out of the way of subsequent inventions; but an annuity tax on U. S. inventors, who are generally poor, would frequently result in depriving a meritorious inventor of all benefits of his invention, and would tend to retard the advance of the arts, by deterring and discouraging such inventors from patenting or making public their efforts.

If the courts, or some government board of patent valuation, could be empowered to assess a valuation on a patent which has lain dormant for years, so that subsequent inventors and patentees (upon proper showing of a want of practical use of the prior patented invention by the patentee, his heirs or assigns,) could purchase the same for a reasonable sum, no one could be injured, poor inventors would be encouraged, and the thefts of patents of poor inventors, or willful appropriation of the inventions covered thereby without regard to the rights of the owner, would be lessened, and the courts relieved of the numerous "infringement" suits instituted on old and worthless patents for the sole purpose of fleecing owners of subsequent meritorious patents by inducing them to compromise to save the expense of litigation.

Second. We have always considered it unfair and unjust that our own inventors should have to pay taxes and annuities on their patents in foreign countries, and work the same therein, under penalty of forfeiture of such patents, whilst on the other hand, citizens of such foreign countries can easily procure patents here without any such burdensome regulations as freely as our own citizens; and we think that congress should enact laws enjoining upon citizens of foreign countries procuring patents in this country, the same burdens and requirements, in order to continue their patents in force here, as are imposed upon our citizens, patentees in such foreign countries. We believe this would eventually result in a readjustment of the patent laws of the several nations which would benefit our inventors materially.

Third. It would, we think, be to the interest of both the public and the patentee if separate courts were established especially for the adjudication of patents. The judges of these courts should be thoroughly versed in patent law, and have such mechanical skill and knowledge as would enable them to properly pass upon the similarities or differences in construction and mode of operation of two or more inventions or machines; and it would probably be advantageous and result in more speedy and certain equity in the judgments if either party could require that a jury of experts familiar with the particular art involved in the litigation, could be called to sit in the case and decide the questions of infringement or non-infringement, damages, etc., from the evidence, under the direction of the judges as to legal or equitable rules, so that the case could be settled at one sitting of the court, and not be heard one week and then, perhaps, put in the judge's desk and not taken up for consideration or

decision by him until months afterward, when his memory of the case is naturally befogged and obscured, and he is apt to base his decision upon some unreasonable and absurd point which has either abnormally remained in his mind or arisen out of the confusion of arguments in his memory due to the long delay between the hearing and the time of decision.

Fourth. If the commissioner of patents would enforce a rule that all applications should not only be examined in the order of their filing, but that all amendments should take precedence according to the date of filing of the application to which they relate, the business of the office would be facilitated.

The laws relative to procurement of design patents and to registration of trade-marks, should also, in our opinion, be modified so as to place such applications on the same basis as applications for mechanical patents, as respects the payment of fees. For instance, the statutes relating to design patents should be changed to allow an applicant to file an application for a three-and-one-half year patent, and after notice of allowance of his application, permit him to pay an additional fee and have the patent issue for either seven or fourteen years. The present statute requires the applicant to elect in his application the term of his patent and pay the full fee therefor, resulting, frequently, in a valuable patent being granted for a very short term; or that the applicant having paid for a full term (14 years) is refused a patent, but receives no rebate, although he could have had a full examination as to the patentability of his design by paying the fee for a three-and-a-half year patent only.

The present statute relative to trade-marks requires the payment of the full term fee, and allows the applicant no rebate if registration is refused. It should be amended so that an applicant could, upon payment of a reasonable fee, ascertain if his mark is registrable, and then pay a final fee to procure the certificate of registration.

The trade-mark statute should also be amended so as to give a registrant as ample protection as does the common-law, and the requirement that the mark must have been used in commerce with some "Indian Nation or Foreign Country" should be eliminated. It should suffice if the mark is used in Interstate Commerce, if the registrant is really the originator and owner of the mark.

The statute relative to registration of labels should also be amended so as to enable parties to protect their labels, boxes, cartons, etc., which are not so arbitrary as to be registrable as trade-marks, nor sufficiently artistic or meritorious compositions to be copyrighted.

Fifth. If your fifth proposition means that a patent procured in one country may at any time thereafter be made operative in any other country, it would, in our opinion, be undesirable and unfortunate, because prior to the patenting in such other country innocent parties might have availed themselves of it and be greatly damaged thereby. The International Union for the protection of inventors is a step in the right direction, only our citizens are not given equal rights with those of other countries therein, because of the differences in the various patent systems.

If the articles of the Union were changed so as to allow our citizens to procure valid patents in foreign countries within six months or a year from date of their U. S. patents, it would, we think, be very desirable and beneficial.

Sixth. As nearly all important countries now have ample trade-mark and brand laws of which our manufacturers can avail themselves, it would seem that the best protection to our manufacturers would be secured by their registering their marks or brands in the foreign countries to which they export goods.

It would, we think, be both a difficult and delicate task to get such foreign countries to pass laws against importation of foreign goods under spurious trade-marks, when the owners of such trade-marks do not care to obtain the legal protection which such countries offer them.

Still something might be effected from the standpoint of protection of their own citizens against frauds, rather than protection of our citizens against spurious imitations.

Unicycle.

Thomas Tolson of Boston, Mass., is the inventor of a unicycle, for which a patent has been recently granted.

This machine consists principally of a larger outer or ground wheel, within which are three small wheels located at the points of a triangular frame and connecting with the inner side of the large wheel's rim and the larger of the inner wheels transmits the motor power from the rider by frictional engagement with the large rim, and is operated in connection with sprocket and chain something after the manner of the bicycle. The saddle rests on a transverse bar crossing the lower part of the triangular frame above the propelling wheel, and just behind the brake rod, in easy reach of the unicyclist when he is riding within his wheel.

Mr. George G. Turri.

The winning of the celebrated cyanide case for the Victorian government made Mr. George G. Turri the most famous patent solicitor in Australia. The cyanide process of extracting gold from low grade ore is one that has proved very valuable in African and Australian mines. An attempt to amend the patent, so as to effectually enlarge the scope of the invention as claimed by the original specifications was attempted in Victoria and Mr. Turri was called upon to protect the public interests—and so well did he succeed in his efforts to defeat the attempt of the patentees—he not only secured heavy costs but a handsome fee from the government, and the judgment was so strong the Australian Gold Recovery



Co., with abundant wealth at its command to litigate further, did not deem it advisable to appeal. The success of this case, the Australian Financial Gazette declares, has already added \$10,000,000 to the value of the stocks of exhausted and heretofore considered, worthless battery tailings in Victoria and given employment to 50,000 men.

The complete history of the cyanide process, the cyanide patents and the litigation in each country, has been compiled and published in pamphlet form by Mr. Turri and is a most interesting document.

Mr. Turri was admitted to practice in Melbourne in 1887 and has built up the leading patent practice in the Australian colonies. In the winning of the cyanide case it is admitted he saved the government of Victoria £250,000, and now the New Zealand government producing only half as much gold as Victoria, is negotiating to pay £150,000 for the process. The government in New Zealand spent thousands of pounds trying to upset the cyanide patent and failed. Three barristers from New Zealand were sent over to Melbourne to consult with Mr. Turri even and still they failed. Mr. Turri is now being requested to help upset the Cyanide patent in Western Australia. His preliminary fee was 500 guineas and those who were for this being paid argue that it will save the government £100,000.

Mr. Turri directed the publication of the great Australasian edition of the INVENTIVE AGE and is a special contributor to other technical journals in this and other countries, but his main business is that of patents—attending more particularly to Australian business for American and other foreign attorneys rather than acting for inventors direct. Mr. Turri has a seat upon the council of the Australian Institute of Mining Engineers, and is treasurer to that body, he is a Commissioner for Declarations and Affidavits; a fellow of the society of Chemical Industry, London; a foreign member of the Chartered Institute of Patent Agents, London; a foreign member of the French Institute of patent agents and a member of the Victorian Chamber of Manufactures.

The patent firm of Geo. G. Turri & Co., are located in the Sun building, Melbourne, and while they serve foreign inventors they recommend that American inventors desiring Australian patents, procure them through their own American attorneys.

Galvanizing Machine.

Edwin B. Cook, of Canton, Ohio, is the inventor and patentee of a machine for galvanizing metal. A pot for holding molten metal is employed for this purpose. In the pot are guide bars for the material to be worked on while scraping bars located above the molten metal, relieve the freshly galvanized piece of surplus coating, as it passes out. With these are other pieces of mechanism, such as guiding rollers and gearing for moving the machinery.

The AGE acknowledges the receipt of a copy of the Report on Vital Statistics of Queensland, 1896, with the compliments of William T. Blakenay, register-general at Brisbane.

Contingent Fees.

BY A MEMBER OF THE PATENT LAW ASSOCIATION.

The contingent fee system is largely of recent growth; that is it now prevails to an extent which would have been regarded as monstrous a few years ago. What is thought of it may be seen by consulting Sharswood's Ethics, from which we make a few pertinent extracts.

PAGE 153. "Agreements between counsel and client that the compensation of the former shall depend upon final success in the lawsuit—in other words contingent fees—however common such agreements may be, are of a very dangerous tendency, and to be declined in all ordinary cases. In making his charge, after the business committed to him has been completed, as an attorney may well take into consideration the general ability of his client to pay, so he may also consider the pecuniary benefit, which may have been derived from his services. For a poor man, who is unable to pay at all, there may be a general understanding that the attorney is to be liberally compensated in case of success. *What is objected to, is an agreement to receive a certain part or proportion of the sum or subject-matter, in the event of a recovery, and nothing otherwise.*"

PAGE 160. "It is to be observed, then, that such a contract changes entirely the relation of counsel to the cause. It reduces him from his high position of an officer of the court and a minister of justice, to that of a party litigating his own claim. Having now a deep personal interest in the event of the controversy, he will cease to consider himself subject to the ordinary rules of professional conduct. He is tempted to make success, at all hazards and by all means, the sole end of his exertions. He becomes blind to the merits of the case, and would find it difficult to persuade himself, no matter what state of facts might be developed in the progress of the proceedings, as to the true character of the transaction, that it was his duty to retire from it.

"It places his client and himself in a new and dangerous relation. *They are no longer attorney and client, but partners.* He has now an interest, which gives him a right to speak as principal, not merely to advise as to the law, and abide by instructions. It is either unfair to him or unfair to the client. If he thinks the result doubtful, he throws all his time, learning, and skill away upon what, in his estimation, is an uncertain chance. He cannot work with the proper spirit in such a case. If he believes that the result will be a success, he secures in this way a higher compensation than he is justly entitled to receive. "It is an undue encouragement to litigation. Men, who would not think of entering on a lawsuit, if they knew that they must compensate their lawyer whether they win or lose, are ready upon such a contingent agreement to try their chances with any kind of a claim."

It is not denied that an attorney upon payment of his retainer and of the expense of litigation, may with propriety agree to accept a fee contingent on success, but that is a very different matter from advancing funds and dividing the profits of the litigation.

As stated by Sharswood, the difficulty of such a proceeding is that the attorney ceases to be a disinterested counsellor, and becomes an interested party.

A reference to the decision of the Supreme Court of the United States in *The Telephone Cases* 126 U. S. 546, etc., will show how that court regarded such conduct on the part of attorneys.

Some patent solicitors when questioned as to the propriety of their professional conduct, have attempted to shelter themselves behind the pretext that they were not attorneys at law, but attorneys in fact—as they are in soliciting patents.

A solicitor has been known to attempt this plea to escape the reprehension of his conduct in changing sides during a controversy in the office, and testifying against his former clients.

In another case, it was urged by an attorney-at-law, in defense of a charge of misappropriating application fees entrusted to him by his client, that as he was an attorney in fact in that case, the question was one between his client and himself and did not concern the patent office. There could be but one opinion among honest men as to such conduct as this.

Without reflecting on individuals, it is a well-known fact that no solicitor who practices on the "no patent no pay" plan could become a member of the Patent Law Association, or be considered as in reputable standing among a large portion at least of his fellow practitioners. Can any instance be named of a "no patent no pay" solicitor who ever acquired a high professional standing in the patent office, or elsewhere?

There are undoubtedly bad men in all classes of the profession, but long experience has demonstrated that where a solicitor's fee depends on success, the obtaining of a patent of some sort is apt to be regarded as a necessity; and as the ultimate compensation is usually small, the temptation to get a patent—no matter how worthless—with the smallest amount of labor, usually becomes too strong for poor human nature, and the client is sacrificed.

On the other hand, the conscientious attorney, who is paid for his time and labor whether successful or not, has every inducement to do good work, not only for the sake of his client, but for his own reputation.

It is unfortunately true that the lust for gain, and lack of honesty, will sometimes lead solicitors of any class into practices which can only be characterized as organized swindling. Such men are so lost to shame and decency as simply to ignore the sacred fiduciary relation of an attorney, and regard a client only as a victim to be swindled to the fullest practicable extent.

Our country is large, and the class of inventors unable to protect themselves against the wiles of

such swindlers is so numerous, that great success sometimes attends such practices; but experience demonstrates that justice, though tardy, is sure in the end, and that disbarment from practice will ultimately smite the wrong-doer, and avenge his crime.

The quotations and citations in the article on this subject in the October number of the *INVENTIVE AGE* are singularly inappropriate to sustain the writer's contention for the "no patent no pay" practice.

What Abraham Lincoln said was right: "As a general rule, never take your fee in advance, nor any more than a small retainer."

There are few attorneys who get their entire fee in advance, or who do not get a retainer. These are very different matters from getting no fee whatever unless successful. Mr. Lincoln it is well known in some cases accepted both retainer and fees during the progress of the case.

Again the article says:

"In the evolution of common sense and business habit men have learned that the better practice is to pay for performance rather than for promise. Hence, the common laborer, the artisan, the mechanic, the clerk, the clergy, the army, the navy, congress, the supreme court, and the President, do not consider it 'unprofessional' to work before they eat."

The reply to these statements is that—

1. By far the larger clientage, especially manufacturers and inventors of knowledge and business experience prefer to pay their solicitors for their work, irrespective of its result. This fact is so well known as to render illustrations superfluous.

2. Persons of every class mentioned in the above extract, from the common laborer to the president, are paid for their work *irrespective of its result*. They do not "work before they eat," but live on their pay from day to day. Suppose the judges of the courts to be paid by the successful party—how long would justice remain in the land? A more infelicitous citation could not have been made, and the fact that the writer of that article has failed to cite a single analogous instance in any other occupation to that of the "no patent no pay" principle, amounts to an acknowledgement that none such is known to him.

In conclusion it may be said that while there may be dishonest men in all professions, and in all branches of them, experience has shown that the "no patent no pay" plan of soliciting patents appeals to a large class of inexperienced inventors who, ignorant of the requirements of proper soliciting, and that the desire for business induces many solicitors to take the chances on every case offered, and endeavor to get a patent which will bring in his fee with the least possible exertion, and without regard to the client's interest.

Foreign Patent Fakirs.

The *INVENTIVE AGE* has taken occasion heretofore to call the attention of inventors to the ridiculous and fraudulent claims of scores of patent agents who make a specialty of securing "valid foreign patents" after the publication of the patent in this country.

In this fight against misrepresentations on the part of patent agents the *INVENTIVE AGE* now has the hearty co-operation of the U. S. Patent Office.

Some solicitors before the department, most of them having headquarters in other cities, have been in the habit of writing to patentees as soon as the statement of the issue of their patent appears in the Official Gazette, offering to secure patents in foreign countries. As the rates offered are very low, the number of such patents secured is very great and the amount of fees collected no small part of the earnings of these firms. The patent office holds that this is intention to defraud on the part of the solicitor, as it is perfectly well known among patent attorneys that foreign patents secured after the publication of patent specifications in this country are perfectly worthless.

Foreign patent law is not nearly so well defined as that of the United States. When the application is accompanied by the proper fee, a patent can be secured in most of them for the asking. No search is made to determine whether or not the device submitted is patentable, nor does the patent guarantee that the same article has not been previously patented in the same country. That is all left to the litigation in a court of justice when legal complications arise. If a man desire to secure a patent abroad, all that is necessary is to make application for the same, and secure the patent warrant. The patentee then trusts the courts to sustain the validity of his claims.

In all cases, however, says the department, it is necessary that the application should be filed on or before the day the announcement is made in the United States Official Gazette. Unless this requirement is observed, the foreign patent is worthless.

The proper form of procedure is for the attorney to make the application for the foreign patent some time during the six months which are allowed to

elapse, if the inventor so desires, between the date of the granting of the patent and the payment of the final fee and its issuance. It is easily seen, therefore, that an attorney who offers to secure a foreign patent for an inventor whose name appears on the list of patentees who have paid the final fee, while able to secure the patent right as promised, is engaged in securing something which is of no value to the inventor, and that, so the patent office holds, is securing money under false pretenses.

So lucrative has this business become, however, that the office reports that almost every one whose name is on the list in the Gazette receives dozens of letters from attorneys from all over the country asking permission to apply for a foreign patent on their invention. The office now has a number of these cases under consideration and will commence a number of prosecutions as soon as the evidence is in shape.

A glance at the prospectus of one of these attorneys will show the methods and the profits of such work. One particular firm writes to almost all the inventors listed in the Gazette and offers to obtain for them patents in any country where patents are recognized. For the sum of \$40 they will secure a "Gebrauchmuster" and "provisional protection" in Canada and England. The German phrase is only a registration of the patent and costs about \$3. "Provisional protection" in Canada is as free as water. In England it costs one pound.

Altogether, then, the cost of the operation proposed by the patent firm is about \$8, which leaves a clear profit of \$32. Other groups are arranged at different rates, the largest of which is \$230. This class includes the following concessions; Germany, Gebrauchmuster; Canada and England, provisional protection; Belgium, France, Hungary, Switzerland, and Italy patents. "Provisional protection" is merely registration and gives no protection. "Patents" in the other countries named mean simply that a patent has been issued to the inventor for this invention. Any one else may have taken out a patent on this same invention the day before or may do so the day after.

To those whose inventions have been patented in this country prior to filing of the application abroad, the patents are absolutely no protection against the prey of foreign pirates. Their inventions are as much the property of any other man, when once the specifications of their inventions have been published, whether in the Gazette or elsewhere, as though it had been put free on the market without the formality of securing the patent right.

The cost of the first three has been given above as \$8. The other patent rights are secured as cheaply. The fee in Belgium is 10 francs; in Hungary, 20 crowns; in France, 100 francs; in Switzerland, 20 francs; and in Italy, 40 lire. In all, the patents in this largest group cost the solicitor about \$50. His fee to the litigant is \$230.

Not infrequently an attorney or his agent will write the patentee and inform him that some man has seen his invention described in the Patent Office Gazette and has made an offer or is willing to make an offer for it. But before the sale can be consummated the prospective buyer must have an abstract of title. This can be secured, writes the attorney, for the sum of \$5 through the efforts of some other attorney, always designating some attorney in collusion with the writer. The second patent attorney goes to the office, secures an abstract of title for \$1. The inventor never hears a second time of the would-be purchaser.

These are some of the schemes used by this class of practitioners before the office. In this class are mentioned the names of several firms in New York City, Philadelphia, and other cities.

Printing on Aluminum.

A process for preparing aluminum plates for surface printing, has been recently patented by George R. Cornwall, of Port Chester, N. Y. This consists principally in first removing the outer compressed skin of the plate, then subjecting the latter to the action of a caustic alkaline bath and afterwards to an acid bath, and removing the resulting salts from the plate's surface. This process cleanses the metal surface, brings out the grain, and thus puts it in condition to receive and hold ink.

Fifty-four patents on hat-pins have been granted in the United States and still the only one in general use is the straight pin that has been the cause of more than one accident—in a recent case in London the loss of an eye. Cannot some inventor discover a practical device to keep women's hats on their heads? Here's a field for the inventive genius of woman.

The new president of the American Steel Railway Association, Albion E. Lang, is a resident of Toledo, Ohio, and ex-president of the Toledo Consolidated Electric Company, controlling all the street railway and electric light properties in Toledo.

Suppression of a Fraudulent System of Patent Practice.

Everyone who appreciates the deep interest which is taken by inventors in all that concerns the patent office and the general patent business of the country will understand the feeling of relief with which the news of the disbarment of Wedderburn & Company has been received. It has been well understood that the arraignment of this notorious firm was the arraignment not merely of one or more individuals, but of a pernicious system of patent practice which was not only working great harm to the interests of the inventor, but was bringing the whole patent business as such into disrepute.

It remained to be seen whether the high standing of one of the most learned of the professions was to be prostituted by the introduction of such proceedings as characterized the business methods of this firm. The atmosphere is at last cleared, and the profession is relieved by one skillful cut of the knife of an unwholesome growth which was gradually poisoning the entire system of the patent practice.

Had the charges preferred against this firm failed to stand, it would have been disastrous for the great body of inventors at large, for a blow would have been struck at the prestige of the patent office from which it would have been slow to recover, and a premium would have been put upon such demoralizing methods as marked the practice of the firm in question. Veracity, honor, fidelity to the interests of the client on the one hand and the interests of the patent office on the other, the disposition to make personal interests altogether subservient to those of the client, and, in fact, every quality which should mark and does mark the representative patent practitioner, would have been cheapened in the eyes of the world, and the objectionable methods which have now been condemned would have received wide-spread advertisement and the appearance of official sanction.

As it is, an additional safeguard has been placed upon the interests of the inventor, and the honor and fair name of one of the most difficult, responsible and easily misunderstood professions has been signally vindicated. That the profession of patent attorney is difficult, is shown by the fact that its duties necessitate a more or less intimate acquaintance with the history and present status of the various arts and sciences the world over; that it is responsible is seen from the fact that the brightest hopes, and what are considered to be the most valuable secrets of the inventor, are intrusted to its keeping and largely depend for their fulfillment upon the fidelity with which the trust is preserved and prosecuted; and that it is misunderstood, is shown by the fact that its recognition is not in any degree commensurate with the knowledge, skill and fidelity which are necessary for the effective discharge of its duties.

The public, however, have not been the only victims, for at least two United States Senators have no doubt innocently been persuaded to aid the scheme by allowing their names to appear as members of the Wedderburn board of award.

The interests of the patent practitioner are insignificant in comparison with the widespread mischief which was being done to the public in the lowering of the whole tone and spirit of the patent business. The methods of the now disbarred firm appealed to the most sordid instincts of the people, and sought to invest the patent system, which is intended for the encouragement of useful inventions, with the features which characterize a reckless game of chance. The public was encouraged to invent, not with the object of improving existing arts, but for the purpose of obtaining monetary rewards and meaningless badges of distinction. The luckless inventor was urged on to enter fields which had already been thoroughly covered, and he was encouraged to apply for patents on devices which were as old as the hills. This trading upon the credulity of the public was worked to such advantage that it grew exceedingly lucrative—a fact which was duly noted by a few other equally unscrupulous but less daring firms who followed with more wary steps along the lines which the pioneers in these extraordinary practices had laid down.

With regard to these smaller firms, whose offense has been only a little less glaring than that of the one in question, it can only be hoped that the strong hand with which Commissioner Butterworth has crushed the chief offender will now be laid upon every firm whose methods are in the least degree questionable. While it may be a difficult matter to prescribe an exact code of ethics for the guidance of those who represent the inventor before the patent office, the recent inquiry has shown that there is, at least, a speedy and drastic remedy for such grossly irregular practices as have lately been flaunted before the office.

The field for genuine invention is vast and ever

increasing. With every new discovery new avenues are opened to new lines of invention, but whatever work there may be, must be done along legitimate ways and to fill legitimate wants.

In the decided course which he has taken the Commissioner has had the full sympathy of the public. He has done a great service to the patent interests of this country, a service whose effect will be widespread and permanent.—*Scientific American*.

Automatic Brake for Baby Carriage.

One of the best inventions of the day to prevent injury to children in baby carriages on the street is that of MacKenzie & Hollingshead of Wellsville, Ohio. Having noticed the careless manner in which babies are left on the street sometimes by mothers or others minding them, Mr. Hollingshead conceived the idea of an automatic brake that would set itself immediately on releasing the handle bar. The brake has a lever on the handle bar, a wire running from lever to the hind axle where is a spiral spring operating an eccentric which opens and closes the brake, by pressing the lever on the handle bar the brake is released from the wheels; immediately on release of the handle bar the brake is automatically set. The advantages of this over any other, say Messrs. R. J. Baker & Co., promoters of Baltimore, Md., is that the buggy can be left on a sloping sidewalk without danger of a careless attendant allowing it to start off by the wind or any other means.

Protection of Trade-Marks.

Attention is being directed strongly towards the need of improvement in the trade-mark laws of the United States and the negotiation of treaties with foreign nations which will give more adequate and less expensive protection to American trade-marks in foreign countries. The agitation of this subject serves to emphasize the weakness of the laws of the United States and the unprotected condition of the American owner of a registered trade-mark. It is a singular and inconsistent fact that an American trade-mark is better protected against infringement from abroad than from piracy within this country where the trade-mark is registered. The Federal laws prohibit the importation of articles of foreign manufacture marked with counterfeits or simulations of American trade-marks; but so far as the internal commerce of the United States is concerned, the protection of the nation's laws is extended only to "trade-marks used in commerce with foreign nations or with Indian tribes."

Endless Clothes-Line.

Hort C. Ekin, of Dallas, Oregon, has been granted a patent for an endless clothes-line. In this there are two pulley wheels each working in the slotted end of a horizontal shank and carrying and endless rope. The back ends of the shanks are secured—one to an upright, in which it revolves; the other to be secured, by screws, to a wall or other stationary place. The shank on the upright has a lever at its end, which extends through the upright so that the two wheels can be turned flat side upward and thus bring the two sections of the line horizontally opposite. By revolving the wheels the clothes can be carried along as they are put on the line, thus making unnecessary for the person at this work to change position—by walking along the line as the laundry is "hung out."

The Edison Ore Plant.

The New Jersey & Pennsylvania Concentrating Works, of which Mr. Thomas A. Edison is president, has just begun operations at Edison, N. J. The plant is for the reduction of the ores of iron found near that place. The ore is crushed to pass through a No. 14 mesh, and concentrated by passing before three sets of magnets worked in multiple from an 80-volt circuit. The tailings from the last of these contain only 1½ per cent of iron, while the concentrated product contains 65 per cent. This is formed by pressure into flat cylindrical briquettes for the furnace. The capacity of the plant is 1000 tons of ore per day, shifts of 125 men each being employed. A 93-ton steam shovel handles the ore. The *Iron Age* of October 28th contains an exhaustive illustrated article on this plant.

Prestwood J. Beubow, president of the Otis Steel Co., Ltd., Cleveland, Ohio, one of the largest steel works in the country died on the 5th inst. as a result of injuries received in a recent railway accident. His loss is almost national in its character so thorough was his understanding of, and experience in, the treatment and uses of iron and steel in ship building and gun-making.

It is now expected to begin publication of the INVENTIVE AGE weekly the first of the coming year.

The Book for Inventors.

Every inventor has received scores of "Instructions to Inventors," "How to Secure a Patent," and other booklets from patent solicitors and promoters, yet it is doubtful if any intelligent inventor has found, in all this flood of literature, that unbiased advice and disinterested information he is longing for. Books printed for gratuitous distribution have hidden between the covers some ulterior design, usually calculated to benefit the donor more than the recipient.

A new and thoroughly impartial and independent work has just been issued, entitled "Patented Inventions; What to Do and What Not to Do to Insure Success to the Inventor." In this work, which is substantially bound in cloth, gold lettering, the author, Martin L. Ware, treats of all the different phases of inventing, securing patents in this and foreign countries, promoting inventions after issuance of patent and asks and answers all questions that an inventor would be likely to ask and desire answers to. It is by all odds the most concise and complete book for inventors ever published. Send \$1.00 to the INVENTIVE AGE, Washington, D. C., for copy of this book, postpaid to any address. See prospectus on another page.

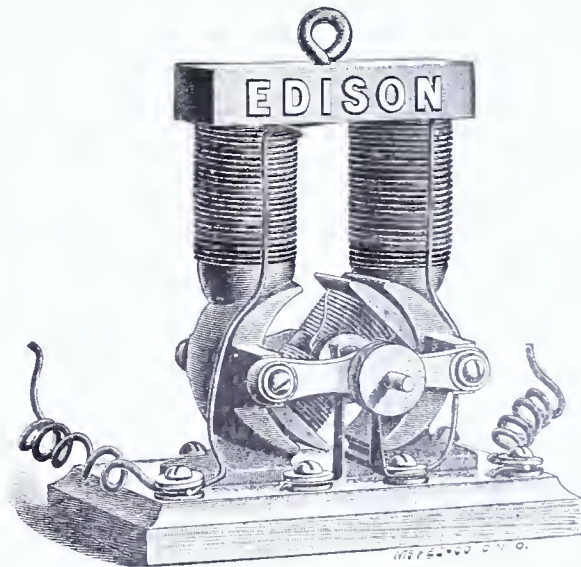
THE columns of the INVENTIVE AGE are open to inventors, promoters, patent solicitors, manufacturers and others for the discussion of matters relating to inventions, trade and industry, science and mechanics, patent law procedure and collateral issues. It is a thoroughly independent magazine and not run as the special organ of any association, combination, firm or interest. It stands for correct principles in patent obtaining and patent selling and against imposition on inventors, by practitioners or patent agencies. It asks the co-operation of all inventors, patent solicitors, promoters and manufacturers, who believe in this platform of principles.

"The Norwegian Mica Company," is the name of a new corporation with headquarters in Christiania, Norway. The company has been formed for the purpose of working mines of mica in Norway. The board of directors are the professor of Mineralogy at the University of Christiania, Yohan H. L. Vogt and the civil engineer in Christiania, Mr. Henry E. Mohr, the latter as president.

Inventors and other readers of the INVENTIVE AGE will find in the "Directory of Patent Solicitors," appearing on another page only those who have been officially registered and recognized by the patent office, and admitted to practice before that bureau.

The \$1 Edison Motor.

This cut shown herewith represents one of the most satisfactory and perfect of all small dynamos, capable of running toys, fans, light models and for



innumerable uses. To the youth scientifically inclined, it offers great satisfaction and benefit.

It is a marvel in price, and if not made in large quantities would cost from \$5 to \$10. We can furnish the motor for \$1 and will send one free to any person forwarding us three new subscribers.

Open Letter from an Inventor to Patent Solicitors.

EDITOR INVENTIVE AGE: Is your paper devoted exclusively to the interests of patent attorneys, or also to those of inventors, patentees and patent owners? If the latter, allow me to say a few words in their behalf to the patent solicitors among your readers. Now that the office "register" for attorneys is secured, and unfair and incompetent competition guarded against, it would be well for the attorneys to do something towards getting Patent Office Rules modified in the interest of their clients. Perhaps they think their duty is fulfilled if they live up to the office rules, whatever they may be. If so, they are grossly mistaken. A rule is not a law, nor is it entitled to any respect or obedience further than it is authorized by the law. There have been, and still are, among the rules of practice, some which are totally destitute of any such authority.

For example, take ex-Commissioner Seymour's famous 6-months rules (28 and 63), his 5-years rule (30), and his rule 4, for mutilating, destroying and falsifying the office records, and for refusing to "accept" communications from applicants or attorneys, *i. e.*, ignoring and suppressing them, without reply or notice.

Among the objectionable rules now in force may be mentioned rules 173 and 176, requiring a new fee of \$15 for each revived or renewed case, for which there is not the slightest authority in the statutes; the second section of Rule 171, declaring that certain kinds of actions are not actions, or, at least, that the office will not recognize them as such, in the face of the express provisions of R. S. section 4894, that the two years shall be reckoned from "any action" by the office; many other rules not authorized by the patent statutes will occur to every attorney.

But the office practice is even worse than its rules. The examiners seem to do about as they please, regardless of both the law and the rules. For an example, take the "final rejection" system, which the office has gradually built up for its own convenience, to "hurry up the work," regardless of the rights and interests of inventors and their attorneys.

There is no authority in the law for "closing the primary examination" after certain claims have been "twice rejected," nor for them refusing to examine other parts of the case; nor even for refusing to examine the twice rejected claims themselves, if they are again amended; nor for refusing to act further in a case because certain claims are "in condition for appeal;" nor for calling a second rejection a "final rejection;" nor for calling the first rejection of an amended claim the second rejection of the claim; nor for refusing to examine claims as often as they are amended; nor for declaring that an amended claim is "admitted as being in better form for appeal," thus refusing to examine it, and holding it under the second rejection, the same as before it was amended; nor for refusing to count *all* actions by the office as "actions" in reckoning the two years before "abandonment" nor for declaring a case "abandoned" for delay in prosecuting it, when the delay is caused by the office itself, making it impossible to prosecute it, by refusing to act or by making some requirement that cannot be obeyed; nor for many other unlawful and obstructive actions by the office.

Attorneys who prosecute cases by personal interviews with the examiners may not object so strongly to the above practice, but all who do business by correspondence most certainly will, because the examiner's second rejection will be called "final," which practically shuts them out from the privilege of really "prosecuting" the case at all. The examiner can at any time (after one rejection) declare the examination closed, and thereafter refuse to act further in the case, calling it "finally rejected." If the applicant cannot afford to appeal, his attorney must within two years cancel the rejected claims, or the case will be declared "abandoned." The whole system is in violation of the law.

Substantially all cases are formerly rejected at the outset, the examiners seeming to think it incumbent upon them to find some reason for it, however doubtful it may be. As everybody knows, the first rejection is hastily made, as a sort of fishing excursion in search of some reference showing at least a faint or distant resemblance to the invention being examined. Anything will do for a reference, the idea being to shift onto the attorney the labor of comparing them and explaining their resemblances and differences. The examiner guesses at it, and the attorney does the real work of the examination. That could be borne, however, if the examiner would fairly consider the carefully

and laboriously prepared explanations and arguments sent in, and act according to the facts, either finding a better reference or allowing the claims.

But under the present system he will not change his decision, however wrong it may be. The references may not be pertinent, the reasons and objections are plainly not in accordance with the facts, but no matter what the attorney says or does, the examiner will not move from his position. He simply "repeats" his action and previous rejection, thus putting the case under "final rejection," and getting rid of it *with one examination*. If the attorney then conceals the twice rejected claims to save the case, he cuts out the best part of the invention, and what remains is fragmentary and incomplete: the inventor gets a patent, not on what really belongs to him, but what the examiner happened to leave for him. Such a patent is a mere shell, of little value, and utterly unable to stand litigation in the courts. And this is not the fault of the attorney, but of the present reckless and unlawful system of examination.

The injury of this system is felt by substantially all applicants for patents, because the system is generally followed. Everything is sacrificed to speed the work. If the attorney cuts out the rejected claims, he gets an inferior or worthless patent; if he does not cancel them, he loses the whole invention by so-called "abandonment." Thousands of cases are lost in that way every year. They are called abandoned, but they are really *killed*. One attorney alone has had over 500 applications "finally rejected" in two years, and every attorney has more or less of such cases. They are finally rejected, not because they are not patentable, but because the examiners want to close the examinations and hurry up their work, and would not consider any further amendments, arguments, or actions.

Why don't the patent attorneys combine and have this practice stopped?

Can an honest attorney witness such a practice in operation, on his clients or others, and hold himself blameless if he does not try to stop it? As an inventor, I must say to you, gentlemen, that we hold you responsible, both for its existence and its longer continuance.

INVENTOR.

The Miseries of Inventors.

What is property? Proudhon's famous phrase instantly replies, like a clap of thunder, "Property is plunder!" (*La propriété c'est vol.*) A general laugh is the rejoinder; for the dullest person now perceives a grim jest at the expense of society, not a war-cry of anarchy, in that appalling epigram. Its author and his disciples, to do them justice, disclaim it as an abstract proposition. They repeat it only as a taunt, bitter just in proportion as it is true. There are persons, nevertheless, who practically adopt the doctrine—if not with regard to material, tangible things, yet with regard to the creations of thought; and among such persons we may include a recent writer who disparages inventors, charging them with imposition, and with "swindling the public annually out of an aggregate of millions." Inventors swindling the public! If there are any men who, as a class, maintain a continual struggle with ill fortune—whose whole life is a ceaseless buffeting of the waves of adversity—who sacrifice their time and health to put money in everybody's purse but their own—it is notoriously the authors of new inventions.

Stories of poor men made poorer, and rich men ruined, by their inventions, are as familiar to artisans as ghost stories to farmers' wives. Who has not known, or been told, of some hard-handed, gray-eyed man, within whose shaggy head a cunning thought was one day born, of chemical or mechanical fact, who straightway became ambitious, abstracted, experimental, laborious—forgot his companions to potter with pipkins, blow-pipe, hammer, fire, and drill—prolonged his workday far into the night—perhaps gave up his shop for his private laboratory or lathe—long baffled and discomfited, yet never despairing—at last, after many weary months or years, shouting "Eureka!" to his assembled mates—setting off for Washington by the help perhaps, of their few clubbed dollars, elated with the certainty of honor and the dream of wealth; yet, after having obtained his patent, becoming in a few months penniless, spirit broken—his funds exhausted by "experiments" and "models"—and parting at last, for a trifle, with his darling invention, to a man of business tact and capital enough to make it a talisman of fortune. This is the history of thousands of inventors—of nine out of ten. In many a manufacturing town in the United States and England people will point you to certain swarthy, long-headed men as the inventors of some patent engine or delicate device or improvement—to factory masters and mill owners, or other rich capitalists, as the patentees.

Not always, however does the inventor meet with

even this poor measure of success. Sometimes years are spent—a whole lifetime—in contending with the difficulties that attend the working out of his conceptions into practice. When Papin, over two centuries ago, launched at Cassel, in Germany, the steamboat on whose construction he had been laboring for years at Hanau, what was his reward for the ingenuity and toil he had expended upon the experiment, which was a triumphant success? Scorn, ridicule, and abuse. He was treated as a charlatan and a fool. When, disgusted with his treatment by the Hessians, he attempted to sail to London in his own vessel, and after descending the river Fulda as far as Munden, was entering the Weser, the boatmen of Munden, envious or suspicious of some damage to themselves by the invention, laid violent hands upon him and his boat, which they destroyed. Escaping with difficulty, and seeking in vain for redress, he went to London, where three years afterward (in 1712) he died.

When Watt was struggling to bring the steam engine to perfection, and applied to Parliament for an extension of the term granted by his patent, some of the most influential members resisted the extension most fiercely. So violent was their opposition, that Watt felt as if he was a blundering proconsul, seeking immunity for his crimes, instead of a poor inventor, asking for a reasonable protection for his ingenuity. Even Edmund Burke, the very last man who would have been expected to block the wheel of progress, opposed the bill. Scarcely had Watt obtained, after a tedious struggle, the extension of his patent, when he was beset by another class of trials. "We are so beset with plagiarists," he says, "that if I had not a very good memory of doing it, their impudent assertions would lead me to doubt whether I was the author of any improvements on the steam engine." He adds that he is not safe for a single day; his thoughts seem to be stolen before they can be uttered. Persons pilfered his ideas, and then complained of his rapacity in stealing their inventions. When, at last, he appealed to the courts for protection, his law expenses amounted in four years to nearly £6,000.

Similar to the struggles, grievances, and disappointments of James Watt have been those of hundreds of American inventors. What an amount of time, toil, and money was spent by Dr. Drake, some fifty years ago, on his explosive gas engine, which yet brought him nothing in return! It is said that Patrick Miller, who made experiments with steamboats in 1789, spent thereon \$150,000, for which he was never repaid a farthing. Yet we are benefitted by his labors, for it was he who first directed the attention of Fulton to the subject. How was it with Whitney, who gave that invaluable invention, the cotton-gin, which has quadrupled the wealth of the South, to his country? Did not he die poor? Even Prof. Morse's triumph, in the invention and perfecting of the electric telegraph, was not achieved until after many struggles, vexations, and rebuffs, and the bitterest ridicule of him and his invention by Cave Johnson, Sam Houston, and other members of Congress. Inventors swindle the public, indeed!

Holding these views of inventors and the ingratitude they have met with, we have read with pleasure an article by Prof. R. H. Thurston, in the Forum vindicating their rights, and deprecating the present tendency of legislation in regard to them. The United States, he says, which began with an exceptionally liberal patent law, for all the costs and sacrifices of which the nation has been repaid a thousand-fold, is now treating the benefactor of the people, the inventor, with the most remarkable ingratitude. Today the legislatures, the courts, the great public itself, unite in oppressing him. It is now becoming fashionable to condemn as a monopoly the inventor's temporary possession of his own under the law; and the greater its value, and the larger the advantage to the public, the louder becomes the chorus of protest against his receiving his due reward. Already as a result of this plan to kill the goose that lays the golden egg, inventors are contemplating removal to a foreign country, where their labors will be appreciated, and they will be protected in their property. We regard it as a burning shame that such an expatriation should be necessary, and we agree with Prof. Thurston, that it is the duty of every intelligent and patriotic citizen to protest against the injustice to the men who have given such an impetus to their country's supremacy in the industrial arts, and to use all his influence in promoting the protecting of the patent system, and in insuring to the inventor a liberal period of possession of the products of his genius.—Prof. Wm. Mathews, LL. D., in Boston Watchman.

A Maine inventor has patented a self-lubricating bearing which it is believed possesses superior qualities to anything yet proposed in this line. It consists of a compound of metal and graphite combined in such a manner as to hold the graphite in solution, this latter feature being the chief point of originality in the invention. All the metals that are used fuse at a much lower temperature than will vitrify glass, which requires 4,000 degrees F.

Procedure of the Official Examiner.

BY FREDERICK W. WINTER.

I have just read an open letter to the editor of the INVENTIVE AGE by one who signs himself "Inventor" in which rather serious reflections are cast upon the examiners of the patent office and upon the practice in vogue in this office in rejecting applications. I am of the opinion that certain statements in the letter of "Inventor" are based upon a misapprehension of the true practice in examining applications for patents, and inasmuch as this misapprehension may be shared by readers of the INVENTIVE AGE other than "Inventor" it may not be improper to briefly call attention to the methods in vogue in the patent office in examining applications for patents, the rules and practice governing such examinations and the reason for the existence and continuance of such rules and practice. To those already familiar with the practice of this office the following may be exceedingly stale, but such readers are asked to pass this over. All patents and applications therefor are classified according to the arts to which they respectively belong into 226 classes. These in turn are distributed among 33 examining divisions, each division having assigned to it as far as practical related classes of inventions. Each class is, in turn, separated into numerous sub-classes, each of which is limited as far as practical to a single feature of invention. When it is recalled that there have been granted nearly six hundred thousand domestic patents and that the foreign patents and printed publications number several hundred thousand, the importance and necessity of a strict classification becomes apparent. The question of classification of inventions is one of the most trying the office has to deal with, and unless it is well done, a complete and accurate examination becomes either impossible or at best a matter of great difficulty. Applications for patents when filed, are distributed among the 33 examining divisions, and those assigned each division are in turn classified by the examiner under the proper classes and sub-classes. They are then entered on the register for the division and distributed among the several assistant examiners for examination. The applications in any given class of invention are taken up for examination as far as practical, in the order of their filing. Special favors in this particular are not granted, the rule being one of strict impartiality, and is, I believe, strictly adhered to. Exceptions to the general rule are recognized in cases where the head of another department of the government requests immediate action because the invention is deemed of peculiar importance to some branch of the public service, in cases of applications for the reissue of patents already granted, in cases of applications covering inventions already patented in some foreign country in consequence of which the term of the United States patent when granted will be limited to that of the foreign patent, and in cases of applications which interfere with the previously allowed applications or unexpired patents. These exceptions are all based upon sound principles, as will be obvious, but in all other cases strict impartiality in the order of examining applications is observed.

In taking up an application for examination the examiner first carefully reads the specification and compares it with the drawings, if any, to determine whether or not they are accurate, and in proper form, whether the device sought to be patented is operative, and in general to secure an accurate understanding of the invention. This done, he carefully reads the claims and is then ready to begin the examination of the prior art to determine the novelty of the invention. In making this examination he is compelled to search through the domestic and foreign patents and printed publications of the class and sub-class in which the application is classified and all related classes of inventions. Just where and what to search requires a knowledge of the arts and of the classification of the office that only experience can give. In the case of simple inventions this search is not difficult nor long, it being possible in some cases to make several a day. With complicated machines, however, the search is laborious and difficult and may extend through several weeks. This search when carefully made will disclose the prior patents and publications that are most closely related to the invention sought to be patented, and if these patents or publications are sufficiently close to meet any or all of the applicant's claims, it is the duty of the examiner to notify applicant thereof and reject the anticipated claims. "Inventor" says this "first rejection is hastily made, as a sort of fishing excursion in search of some reference showing at least a faint or distant resemblance to the invention being examined. * * * The examiner guesses at it, etc." This I must deny. My experience

has been that these first examinations are carefully made and the result thereof conscientiously applied. It must be remembered that the office rejects claims and not the application as a whole. Hence it may and often does happen, that a reference showing, but "a distant resemblance to the invention being searched" may be a complete bar to the claim against which it is cited, by reason of the undue breadth of the latter. As is well known to attorneys and examiners, the claims presented in the first instance, are in most cases made very broad, and justly so, in order that the applicant may obtain the broadest protection possible. But the very breadth of the claims makes it possible to meet them in a patent that may not closely resemble the applicant's device. But these same rejected claims, when amended to distinguish them from the cited patent, will be allowed, as "Inventor" knows.

It is possible that "Inventor" had in mind his specific device and failed to note or appreciate the legal scope of the rejected claim or claims and hence the rejection was not obvious to him.

After a claim has been rejected it may be amended so as to avoid the cited reference, or if the applicant is of the opinion that it is not met by the reference he may ask for a reconsideration thereof. In either case the examiners will re-examine the case and if better references are found these will be cited. If no other references are found he will either allow or again reject the claim on the old reference according to his opinion as to the pertinency of the reference. But "Inventor" says the examiner will "not consider the carefully and laboriously prepared arguments sent in, * * * and will not change his decision, however wrong it may be." I cannot believe that there is any examiner in this office who fails to consider the arguments presented by an applicant. He may not always, for reasons that seem to him sufficient, answer such arguments in detail, but that he does not consider them is contrary to my experience. Furthermore, the examiners frequently change their decisions when they are shown to have been in error. That, "Inventor" has failed to induce the examiner to change his decision simply goes to show that "Inventor's" arguments were not such as to satisfy the examiner that he was in error. Furthermore, the fact that the examiner does not change his decision goes to show that the first rejection was carefully and considerably made.

The applicant may amend his claims as often as the examiner cites new references or reason for rejection. When the examiner has no further references to cite and the applicant sees no necessity for further amendment they are at issue and unless the applicant can convince the examiner that the claim or claims are patentable over the references cited, the latter will finally reject the same.

It is this "final rejection system, which the office has built up for its own convenience" and for which "there is no authority in law" that "Inventor" has a special grievance against. He can see no reason for refusing to examine claims as often as they are amended.

It is obvious to any fair-minded person that the consideration of an application by the examiner must come to an end some time. The rights of the other applicants demand it. The office has for many years been supplied with barely enough force to keep the work from falling hopelessly in arrears. The work must be done under constant pressure in order to keep it up its present status. Consequently if applicants were permitted to indefinitely amend their cases it would be impossible to bring many cases to a close and the loss of time would bear heavily upon those applicants who desire to secure a patent at as early a date as possible. The practice of finally rejecting cases at certain stages has been made necessary by the conditions which surround this office. That it is authorized by law is clear. The statutes provide in general terms for the examination of applications, the details thereof being wisely left to the discretion of the Commissioner. The statutes also provide for an appeal from the primary examiner to the examiners-in-chief. It must therefore have been contemplated that the case be put into condition for such appeal. A final rejection is the means the office has devised for putting the case in condition for appeal. There certainly is nothing in this practice contrary to the letter or spirit of the law. Furthermore, after the examiner and the applicant are at issue why should a final rejection not be given? The applicant asks for a reconsideration of a rejected claim; the examiner reconsiders it and is still of the opinion that it is not patentable. Why continue this proceeding? If the examiner fails to see patentability on the second consideration, is it likely that he will see patentability on third or fourth consideration thereof? The statutes provide for an appeal in such cases, and a just regard for the rights of other applicants demands that the appeal be taken, and the time of the examiner not further consumed in considering questions upon which he has twice passed deliberate judgment. Furthermore, why should an applicant be allowed as a matter of right

to amend after a final rejection? Is he advised of any necessity for amendment by a final rejection which he was not advised of in the first rejection? I think not.

It looks very much as though "Inventor" wishes to experiment with the examiner to see what he can get, instead of clearly and definitely ascertaining what he is entitled to and then standing on that right.

But he is of the opinion that the examiner arbitrarily finally rejects applications; that he does about as he pleases in this respect.

The practice in this particular is clearly defined and is I believe strictly followed. Final rejection cannot be given until all the non-allowable claims are in condition therefor and it can be given only upon a second consideration of the same claim or claims, or those which have not been amended in substance. If, as a matter of language, the amended claim does not present the same idea of invention as the previously considered claim, an amendment has been made in matter of substance, and the applicant is entitled to a second consideration of the amended claim. On the other hand if the amended claim is merely different in phraseology a final rejection is in order.

Furthermore, this final rejection does not kill the case. Applicant may cancel the finally rejected claims and take a patent for those, if any, that have been allowed; or he may take an appeal on the finally rejected claims to the examiners-in-chief, and obtain a reversal of the decision of the examiner, if the latter was in error; or he may further amend upon a showing duly verified of good and sufficient reasons why the amendment was not earlier presented. The rules and practice thus afford ample remedies for the applicant who is prosecuting his case in good faith. The restrictions are leveled only at those who, not knowing clearly what they want or are entitled to, attempt to experiment with the office, thereby needlessly consuming the time of the office and of other applicants. The practice of finally rejecting cases is based upon business principles and for business purposes.

The question of the patentability of inventions is one upon which men honestly differ. That the examiners and applicants will ever be strictly in accord on this question is hardly probable. They look upon the device from different points of view, and necessarily so. Perhaps the truth, here as elsewhere, does not lie at either extreme, but between the two. Be that as it may the examiners in recording their opinions on this question should not be accused of hasty, arbitrary, unfair and unlawful action, merely because "Inventor" differs with them on this question. It is not warranted; it is not just.

The Inventors Law Company.

The Inventors Law Company occupies rooms in the INVENTIVE AGE Building, corner of 8th and H streets, N. W., Washington, D. C., and will conduct a general law business relating to patents and trade-marks. It is a recently incorporated association of gentlemen of ability and long experience in patent law practice. Its president, Mr. Edward C. Goodwin, has occasionally had business before the patent office during the last 9 years, is a member of the Massachusetts bar and the United States supreme court bar. Its vice president Mr. Franklin H. Hough is well known in Washington as a gentleman of high standing in his profession. He has practised before the patent office continuously 17 years, as well as occasionally before the United States supreme court and the New York bar. Mr. Amos L. Allen, treasurer, is said to be an able all-round lawyer of high standing and many years practice. Mr. H. Lincoln Hough is also a well known patent lawyer and is regarded as an expert in patent office practice. Ex-Judge Geo. F. Gould is said to be an able and eminent corporation lawyer who has a large practice and has given special attention to the formation and incorporation of companies which will be embraced in the business of the Inventors Law Company.

It is understood that it is not the intention to merge the clientage or business of these several gentlemen in the new company, but rather that it is a plan to enlarge the business of its president who has associated with him, as advisory counsel, these other well known gentlemen. The Inventors Law Company will, it is believed, conduct a conservative business and merit the full confidence of the public.

It is said that the cost of producing a ton of Bessemer steel is now less than one-third of the manual labor of twenty-five years ago. This is brought about entirely through invention.

Mr. W. G. Caffrey of Reno, Nev., is the inventor of a trolley electric road wagon, which system, where power can be obtained cheaply, ought to become popular, with all classes, and especially in rural districts possessing good roads.

PATENT LAWS OF HAWAII.

And Rules Now Governing Practice in the Patent Office of that Republic.

(By Hervey S. Knight.)

CORRESPONDENCE.

1. All business with the office should be transacted in writing. All action of the office will be based exclusively on the written record.

2. All letters must be addressed to the Minister of Interior.

3. Freight, postage or other charges on matter sent to the office, must be prepaid in full. Otherwise it will not be received.

4. The correspondence of the office will be held with the applicant, unless he shall have appointed an attorney to represent him, or unless he shall have assigned the entire interest of his invention, in either of which cases the correspondence will be held with such attorney or such assignee.

5. A separate letter, should in every case, be written in relation to each distinct subject of inquiry or application.

INFORMATION TO CORRESPONDENTS.

6. The office cannot respond to inquiries as to the novelty of an alleged invention in advance of an application for a patent.

7. Caveats, and pending applications, are preserved in secrecy. No information will be given respecting the filing of any caveat or application for a patent without authority from the applicant, unless it shall be necessary to the proper conduct of business before the office.

8. After a patent has been issued, the model, specification and drawing are subject to general inspection, and copies, except of the model, will be furnished on the terms published with these rules.

ATTORNEYS.

9. Any person of intelligence and good moral character, may appear as the agent or the attorney-in-fact of an applicant upon filing a proper power of attorney.

10. Powers of attorney may be revoked at any stage of the proceedings in a case; and when so revoked, the office will communicate directly with the applicant or such other attorney as he may appoint. The assignee of the entire interest may be represented by an attorney of his own selection.

APPLICANTS.

11. Any person who has invented or discovered any new and useful art, machine, manufacture, process or composition of matter, or any new or useful improvement thereof, not known or used by others in this country, or described in any printed publication before his invention or discovery thereof, may upon payment of the fees required by law and other due proceedings had, obtain a patent therefor; provided, also, that if such person has received a patent or patents for his invention or discovery from any foreign government, he may also obtain a patent therefor in this country, unless the article patented has been introduced into public use in the Hawaiian Islands for more than one year prior to his application for a patent.

12. In case of the invention or discovery having been previously patented in a foreign country, the patent issued in this country shall be so limited that it shall not continue longer than the time of the expiration of such foreign patent, or if there is more than one foreign patent it shall not continue longer than the time of the expiration of the one with the shortest unexpired term, and in no case shall it be in force more than ten years.

THE APPLICATION.

13. Applications for Letters Patent must be made to the Minister of Interior in writing.

14. A complete application comprises the petition, specification, oath and drawings, and the model or specimen when required, and the first fee of \$25. The petition, specification and oath must be written in the English or the Hawaiian language.

15. No application for a patent will be placed upon the files for examination until all of its parts except the model or specimen are received.

THE PETITION.

16. The petition is a communication duly signed by the applicant, and addressed to the Minister of Interior, stating the name and residence of the petitioner, and requesting the grant of a patent for the invention therein designated by name, with a reference to the specification for a full disclosure thereof.

THE SPECIFICATION.

17. The specification is a written description of the invention or discovery, and of the manner and process of making, constructing, compounding and using the same, and is required to be in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it apper-

tains, or with which it is most clearly connected, to make, construct, compound and use the same. It must conclude with a specific and distinct claim or claims of the part, improvement or combination which the applicant regards as his invention or discovery.

18. The following order of arrangement should be observed in framing the specifications:

First. Preamble, giving the name and residence of the applicant and the title of the invention;

Second. General statement of the object and nature of the invention;

Third. Brief description of the drawings, showing what each view represents;

Fourth. Detailed description explaining fully the alleged invention, and the manner of constructing, practicing, operating and using it;

Fifth. Claim or claims;

Sixth. Signature of the inventor;

Seventh. Signatures of two witnesses.

19. Where there are drawings the description will refer by figures to the different views, and by letters or figures to the different parts.

20. The specification must be signed by the inventor or his attorney, and the signature must be attested by two witnesses. Full names must be given, and all names, whether of applicants or witnesses, must be legibly written.

21. All of the papers must be written in a fair legible hand, on but one side of the paper, otherwise the office may require them to be printed. All interlineations and erasures must be clearly marked in marginal or foot notes, written on the same page. Legal cap paper, with the lines numbered, is preferable, and a wide margin must be reserved upon the left hand side of each page of the specification.

THE OATH.

22. The inventor must make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition or improvement for which he solicits a patent. That the same has not been patented to himself or others with his knowledge or consent in any foreign country, or if the same has been so patented, the details of, name, country, date, number and term must be given; and that the same has not to his knowledge been introduced into public use in the Hawaiian Islands for more than one year; that he does not know or believe that the same was ever before known or used, and shall state of what country he is a citizen, and his place of residence.

23. The oath may be made before any person within this Republic authorized by law to administer oaths, or when the applicant resides in any foreign country, before any Minister Charged d'Affaires, Consul or Commercial Agent, holding commission under the Hawaiian Government, or before any notary public in such foreign country, the oath being attested in all cases by the proper official seal of the officer before whom oath is made.

DRAWINGS.

24. The applicant for a patent is required by law to furnish drawings of his invention where the nature of the case admits of it.

25. The drawings must be signed by the inventor, or his attorney, and attested by two witnesses, and must show every feature of the invention covered by claims.

26. The drawings to be in duplicate, one copy on heavy parchment, the other copy on tracing cloth, the drawings to be made with india ink of best quality and with pen only, every line and letter must be black. The size of a sheet on which a drawing is made should be exactly 10x15 inches; one inch from its edges a single marginal line is to be drawn, leaving the "sight" 8x13 inches. Within this margin all work and signatures must be included, one of the smaller sides of the sheet is regarded as its top, and measuring downward from the marginal line a space of not less than 1¼ inches is to be left blank for the insertion of title, name, number and date.

27. The scale to which a drawing is made should be large enough to show the mechanism without crowding and more than one sheet may be used, if necessary, to accomplish this end. Letters and figures of reference should be carefully formed, and large enough to be plainly distinguished. If the same part of the invention appears in more than one view of the drawing, it must always be represented by the same character; and the same character must never be used to designate different parts.

28. No agent's or attorney's stamp, or advertisement, or written address, will be permitted upon a drawing.

THE MODEL.

29. A model will not be required as part of the application unless on examination of the case it shall be found to be necessary or useful; when, if so found, the commissioner of patents shall, in writing, notify the applicant, and action in the case shall be suspended until a model is furnished.

30. The model must clearly exhibit every feature

of the machine which forms the subject of a claim of invention, but should not include other matter than that covered by the actual invention or improvement, unless it shall be necessary to the exhibition of the invention in a working model.

31. The model must be neatly and substantially made of durable material, metal being deemed preferable; but when a material forms an essential feature of the invention, the model will be constructed of that material.

32. The model must not be more than one foot in length, width or height, unless the commissioner of patents shall admit working models of complicated machines of larger dimensions.

33. Models belonging to patented cases will not be taken from the office except in the custody of a sworn employee especially authorized by the commissioner of patents.

SPECIMENS.

34. When the invention or discovery is of a composition of matter the applicant shall furnish a specimen of the composition and of its ingredients sufficient in quantity for the purpose of experiment.

35. In all cases where the article is not perishable a specimen of the composition claimed, put up in proper form to be preserved in the office must be furnished.

INTERFERENCES.

36. An interference is a proceeding instituted for purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention or discovery.

37. If an application filed appears to claim substantially the same invention for which a caveat has been filed, the commissioner of patents will notify the caveator to complete his application in three months, and if upon the filing thereof it appears to be in conflict an interference will be declared. If the caveator fails to complete his application within the time designated, or such further time as for cause shown may be granted to him, the commissioner of patents will proceed to examine the first named application as if there were no caveat.

38. Each party to the interference will be required to file a concise statement under oath showing the date of his original conception of the invention, of illustration by drawing or model, of its disclosure to others of its completion and of the extent of its use.

39. Testimony in such cases may be taken orally before the commissioner of patents, at such time as he may designate, or it may be taken by commission according to the forms usual in the courts of the Republic.

40. After the testimony is closed the case shall be carefully examined by the commissioner of patents and adjudicated upon the proofs presented.

CAVEATS.

41. A caveat under the patent law is a notice given to the office of the caveator's claim as inventor, in order to prevent the grant of a patent to another for the same alleged invention upon an application filed during the life of the caveat, without notice to the caveator.

42. A caveat may be filed in the Interior Department by any person who has made any new invention or discovery, and desires further time to mature the same, upon payment of the fee required by law. Such caveat shall be preserved in secrecy, and shall be operative for the term of one year from the date of filing.

43. The caveat must comprise a petition, a specification, an oath, and when the nature of the case admits of it a drawing, and must be limited to a single invention or improvement.

APPEALS.

44. Appeal from an adverse report of the commissioner of patents lies to the supreme court in Banco. The commissioner of patents will furnish to the applicant or to his attorney a written statement of his reasons for such report, whereupon the applicant may amend his application or may, within ninety days after such written statement is furnished to him or to his attorney, or mailed in the post-office at Honolulu, addressed to him or to his attorney, appeal to the supreme court in Banco.

In case of appeal the applicant shall file in the office of the Minister of Interior at least twenty days before the hearing by said court, his reasons for appeal specifically set forth in writing, and shall give to said Minister at least ten days' notice in writing of the time and place of such hearing.

ASSIGNMENTS.

49. Every patent, every certificate of copyright and every certificate of registration of a print, label or trade-mark, or interest therein, shall be assignable in law by an instrument in writing; and the patentee, or his assigns, or legal representatives may, in like manner, grant and convey an exclusive right under his patent, of his certificate of registration, to the whole or any specified part of the

Hawaiian Republic. Such assignments must be executed and acknowledged in the same manner which is prescribed by law for conveyances of real property, and must be filed for record (in the office of the registrar of conveyances) within three months after execution.

FEES.

50. On filing an application for a patent \$25; on filing a caveat \$5; on the issue of a patent \$5; for copies of records, for every one hundred words, or fraction thereof 50 cents; for translation of every one hundred words, or fraction thereof \$1; for copies of drawings, the cost of making them; for revenue stamp on each patent \$10; for recording every assignment, for every one hundred words, or fraction thereof 50 cents.

FORMS.

The forms approved by the Hawaiian patent office for use in procedure there, correspond in substance so closely to those employed in the United States, that it is thought to be useless to reproduce them here.

The petition for patent and power of attorney must be addressed to the Minister of Interior, but may otherwise follow the forms used in the United States. The oath accompanying the application may be identical with that now commonly employed in the United States with the single exception that it should allege that "the invention has not been in public use or on sale in the Republic of Hawaii for more than one year prior to the application for patent."

Books and Magazines.

On some accounts the most important feature of the *American Monthly Review of Reviews* for November is an illustrated article entitled "From the Lakes to the Sea," by Carl Snyder. Mr. Snyder describes the various inventions which have made feasible, through cheapened methods of construction, a great ship canal connecting the Great Lakes with the Atlantic Ocean. It would appear from the figures and estimates set forth in Mr. Snyder's article that the Chicago Drainage Canal has been a fruitful object-lesson to engineers. It shows how cheaply and rapidly canal construction can go on with the new devices for cutting and dredging.

A companion piece, so to speak, of "Herman the Magician," mention of which was made in the last number, is "Hours With the Ghosts; or XIX Century Witchcraft," by H. R. Evans. It is an admirable expose of the devices of pretended mediums and charlatans, with fullest evidence furnished as to their trickery. Forty illustrations of the highest interest (many of them full page half-tones) revealing the secrets of rope-tying, slate-writing, materializations, spirit-photography, etc. The strongest account ever published of Madame Blavatsky's life and work; also a synopsis of the Theosophists' doctrines and a sketch of the successors of the famous Russian priestess, with a complete bibliography of all works on the subject. Bound in Holliston cloth, rough edges, polished red top, \$1.00. (Laird & Lee, Chicago.)

Laird & Lee bring out the first American edition of "Won By a Woman," one of the most touching as well as most dramatic stories due to the pen of the great Italian novelist, Edmondo de Amicis. The translator, Signor Mantellini, has done his work well, and delicate illustrations by De Matteis, are scattered all through this exquisite little volume, in its dainty binding of ivory parchment cloth and gold. In contents and make-up we do not think that Chicago—and even Eastern—publishers have ever produced a more perfect book; Laird & Lee, Chicago, 75 cents.

A subscriber in Scotch Plains, New Jersey, writes: * * * I would not miss a number of the INVENTIVE AGE for anything. Have taken your paper now for about five years or more. I have read carefully the matter in relation to the Wedderburn trial and am glad to notice the stand you take to root out these fake concerns. There are more of them and the sooner we are rid of them the better."

Owners of foreign patents on inventions not yet patented in the United States are advised to proceed at once to apply for patents in this country. Under the new law after December 31, 1897 only seven months will be allowed after filing application in a foreign country.

The Western Union Telegraph Company lost its case against the American Bell Telephone Company. The telegraph company wanted heavy damages on account of a contract, by the terms of which it claimed to be entitled to a percentage of earnings of the sub-companies of the American Bell system.

DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Decisions of Commissioner.

Ex parte Weaver; decided August 17, 1897.

TRANSFERRING APPLICATIONS—CONDUCT OF EXAMINERS.

An application will not be transferred from one division to another on the ground that it is not receiving proper treatment by the Examiner in charge of it. Other relief will be applied when it is clear that an Examiner is not performing his duties as he should.

INTERFERENCE—PATENTABILITY OF THE ISSUE.

Before an interference is declared the subject matter of the issue must be decided to be patentable. To declare an interference and put a party to the trouble of conducting it and then when he succeeded reject his claims on the same reason urged prior to the declaration of the interference is unwise and unjust.

BREADTH OF CLAIMS—"MEANS."

An applicant should be allowed to claim his invention as broadly as possible in view of the state of the art. The use of the term "means," with the proper qualifying words, is not prohibited by any decision of the Office or courts.

SAME—CLEARNESS OF STATEMENT.

Where the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed, the breadth of the statement of the claim is no reason for objecting to it. (*Ex parte Knudsen*, 72 O. G., 589.)

Ex parte Smith; decided October 11, 1897.

DESIGN—MOVABLE PARTS.

A design as a whole should be of unchanging character and should not include movable parts, since the shape or configuration of a device is varied by varied positions of its elements.

Ex parte Peerless Carbon Black Company limited; decided October 1, 1897.

TRADE-MARKS—WORD "PEERLESS"—DESCRIPTIVE OF QUALITY OF GOODS.

The word "peerless" being an adjective meaning "unequaled, unmatched, matchless, unsurpassed," etc., registration as a trade-mark refused on the ground that it is descriptive of the quality of the goods to which it is applied. To give to one person the exclusive right to its use as a trade-mark would be to deprive the public of its lawful use in language.

Ex parte Yale & Towne Manufacturing Company; decided October 1, 1897.

TRADE-MARKS—"YALE"—LOCKS.

The word "Yale" refused registration as a trade-mark for locks on the ground that it is public property, being descriptive of a lock of a certain kind.

SAME—PATENTED DEVICE.

No one has the right to the exclusive use of the word "Yale" as a trade-mark for locks, as any one who makes a lock disclosed by any one of the expired patents taken out by the Yales has a right to designate such lock as a "Yale lock," and it would be the proper and true name of such lock.

SAME—PATENTED DEVICE.

It is well settled by all the authorities that when an inventor obtains a patent on a device and said patented device is known by a certain name the name becomes public property at the expiration of the patent.

Ex parte Sellers et al; decided October 1, 1897.

PRACTICE—EXAMINERS REFERRING QUESTIONS OF PRACTICE TO THE COMMISSIONER.

The Commissioner should not be called upon to instruct an Examiner as to how he should act upon an application or pass upon questions arising during the prosecution of a case until the case is properly before the Commissioner by petition or appeal. It is the Examiner's duty to act on applications as they come before him, using his best judgment in deciding any question that may arise in the consideration of the case. If exception is taken to his ruling, there is relief by petition or appeal.

Decisions of Secretary of the Interior.

In re Nash; decided September 14, 1897.

PAYMENT OF FEES—DISHONORED DRAFT.

Where a draft presented in payment of the fee in an application for patent is dishonored because of the failure of the bank by which it was issued, *Held* that it did not constitute payment of the fee.

SAME—RULE 223.

Such draft was not a compliance with Rule 223, specifying the manner in which money shall be paid, since the money was never received by any officer of the United States.

In re Borton; decided September 14, 1897.

REPAYMENT OF MONEY—ACTUAL MISTAKE.

Where an appeal is regularly taken and the fee therefor paid, but thereafter the applicant changes his purpose and concludes not to prosecute the appeal, *Held* that there was no such mistake in the payment as would warrant the return of the appeal fee.

Decisions of the U. S. Courts.

U. S. Circuit Court—District of Massachusetts—Thompson-Houston Electric Company v. Athol and Orange Street Railway Company; decided September 27, 1897.

MECHANICAL SKILL—ELASTIC SUSPENSION.

The matter of elastic suspension by springs and of otherwise giving either entire or partial support is so common in the arts that the presumption is against the patentability of any such mere form of suspension. The selection of a form of support is in the common field of mechanical construction.

U. S. Circuit Court—Southern District of New York. Saxlehner v. Graef et al; decided June 17, 1897.

TRADE-MARK—DISCONTINUING USE—PRELIMINARY INJUNCTION REFUSED.

The defendants having discontinued the sale of the articles for the complainant and having also discontinued the use of the trade-mark, which had been applied thereto, a preliminary injunction is refused.

INDIVIDUAL TRADE-MARK—UNFAIR COMPETITION.

Defendants having been the exclusive importers of the Hunyadi Janos waters and having pasted their own individual mark on each bottle sold by them, in addition to the mark of the complainant, and having discontinued the sale of such

waters, *Held* that they cannot be relieved from the use of the same individual mark on the water which they thereafter sold on the ground of unfair competition, since the complainant has no title to such individual mark.

PRELIMINARY INJUNCTION—QUESTIONS FOR FINAL HEARING.

The question as to whether laches or inaction has in way impaired the complainant's right to an injunction and whether the continued use of the word "Hunyadi" after sale of complainant's water was discontinued was or was not proper may appropriately be left for final hearing where it appears that this word is not now being used.

U. S. Circuit Court of Appeals—Ninth Circuit

Gaskill et al v. Myers; decided July 1, 1897.

REISSUE—DEFECTIVE CLAIM—OMITTING ELEMENTS.

A claim which made what was no part of the invention one of the elements was defective, which defect was properly cured by omitting the improper element from the reissue.

Why Patents Are Not Sold.

To buy a patent of the average would-be-inventor, the purchaser is taking about the same risk that he would take if he bought a gold brick.

Not because the attorney in the case has failed to prosecute the case properly or the patent is not all right, but because the inventor has nothing to patent, and because the rules are such that an inventor can take out a patent on most any kind of a device and claim that it is all right and will do so and so, when the facts are that it never worked and never will work if made after his plan.

If our good commissioner would take one more step and secure a rule and law requiring inventors to file with their application for a patent a sworn statement made by two competent parties that they had seen the invention work and that it worked as claimed by the inventor, it would be a blessing to all honest real inventors and would shut out the frauds with their dreams which they place before the public as inventions, and use their patents as proof that their dream is real.

The following article from the court news in *Cincinnati Enquirer* of October 30, will show the end of the Darby Burner and if the above rule had been in force Darby would never have secured a patent and it would have saved young Darby, the humiliation of arrest and his friends and many others their money. The facts are Darby never had a burner that would not carbonize and it never at any time did what he claimed it would.

A petition was filed in the Common Pleas Court yesterday asking for the appointment of a receiver for the Darby Oil Gas Burner Company, which has been sued a number of times during the past few weeks on the ground that the representations that its patent burner would do certain things were false, trials of the burner having demonstrated that it would not do the work claimed for it. The suit filed yesterday was by J. H. Willis. He says he is owner of three shares of the capital stock of the company. He charges that there have been numerous suits against the company, and attachments have been issued against its property; that one of the officers of the company is under arrest for obtaining money by false pretense; that a large number of burners have been manufactured which do not work satisfactorily, and a large expense had been incurred in that work; that the business has not been and is not being managed satisfactorily, and therefore the assets of the company are going to waste; that the company is insolvent, and unable to pay its just debts.

A great many inventors think because they can secure a patent, that that is proof that the invention is all right and that they are protected by the United States and have a perfect right to step out and swindle any one they can find who will put up their money.

After the party pays his money for an interest in the invention he finds when he comes to manufacture it that it will not work as shown and claimed in the patent, or if it does work that it costs more to manufacture it than other better articles now on the market sell for at retail, and because the inventor is poor or claims to be poor, he lets him go without punishment. The common thief is poor also but he is arrested and punished when he commits a theft and the would be inventor who obtains the money of one man by false pretenses should be punished the same as the common thief and if a few more arrests like the one in the Darby case were made it would have a wholesome effect toward putting a stop to this kind of swindling.

Inventors do not stop to think how they got their invention and that others can accomplish the same thing by some other plan and secure a patent equally as good if not better than theirs for a small sum.

The only way to make money out of an invention or a patent is to manufacture it and so long as would-be-inventors and frauds are allowed to take out patents on inventions that never worked and never will work, the man with money is afraid to invest it and the honest hard-working real inventor is looked on as a thief and classed with such men as the perpetual motion crank and have such cases as the Darby Burner flaunted in his face as proof that he belongs to that class.

If the inventor would be forced to prove what he claims before he could secure a patent it would be no hindrance to the real inventor and it would shut out the imaginary dream inventor.

MANUFACTURER.

SCIENCE and INVENTION.

Industrial and Scientific Notes.

An important branch of the Agricultural Department is that which concerns seed; and the scientific part of this work is most interesting. One feature of this (seed preserving), now under consideration by the department is of deep interest to seedsmen and farmers.

There are many different kinds of seeds which possess but little capacity for retaining their vitality for any considerable length of time and since the preservation of valuable varieties of the less "robust" kind is of much importance, many tests to this end have been made. Seed have been buried in earth, bottled up, kept in dark rooms and otherwise treated, to keep them from becoming worthless; but up to the present, no perfect method for this purpose has been discovered.

The department, in this work will employ quite an unique process. In this quantities of different seeds will be placed in sealed tubes—some in vacuo and some with gases. The latter will be employed with a view to finding out their anaesthetic or narcotic effects upon seed; for, as seed, like plants, live and breathe, the point sought for will be suspension of the animate force of the germ and thus cause it to "hibernate" until wanted for planting, when the "chrysalis" will be opened and the "spell" removed.

This idea opens a wide field for mental speculation: for if animation can be suspended in seed, why can not it be so in animals? Will the future herder instead of feeding his cattle through the long winter, administer to each bovine and porcine a dose of "suspender," bury them, and when grass comes again dig them up to continue the fattening process? And as to mankind! Well here is a beautiful problem for the scientific philanthropist.

There has recently been received at the Department of Agriculture some beautiful apples from Nova Scotia, of the gravenstine variety, which are remarkable from the fact that they grew, without artificial help, upon a tree bearing at the same time a different kind of apple. The department also has some of the famous Albermarle pippins, many of which are shipped to England for Queen Victoria and the nobility. One farmer in North Carolina sold the product of 1100 trees bearing this fruit for \$20,000.

There has just been started in Washington a society for the study of mushrooms, with a view to disseminating information in regard to poisonous and non-poisonous varieties, methods of cultivation, etc.

The United States Fish Commission is congratulating itself over the now evident results of lobster culture, from the fact that lobster fishermen are finding in their traps a great many young lobsters, something which has not happened for many years prior to the distribution of the eggs of these crustaceans. The lobster catch between 1887 and 1892 decreased in number over 5,000,000, and since the latter date the fall off has been between 3,000,000 and 4,000,000. Although 100,000,000 young lobsters have been turned loose during the last several years it is only of late that the good results from this work have been manifest.

Besides fish, lobsters, oysters and clams, embraced in the work of the Fish Commission, the latter is giving some attention to frog culture, not actually, but by investigation. The annual frog catch in the United States amounts to nearly 1,000,000 which brings to the catchers about \$50,000. The frog hunter gets from a few cents to as much as \$4 per dozen for live frogs.

New Inventions.

A patent has been recently issued for a trace fastener, which consists principally of a casing or block in which is a groove containing a spring for holding back the shank of a hook having its bent portion outward and contacting with the end of the casing. This is secured to the base of the shaft, and when the trace is to be fastened it is only necessary to pull the hook forward, slip the trace over its short part, which is then drawn securely back against the end of the casing.

When the recently patented invention—a combination time lamp-lighter and alarm clock—gets upon

the market, the early riser will have no trouble about waking and groping in the dark for a match. This apparatus, at a set time, turns loose its whistling noise, strikes a match and lights a lamp before the sleeper gets his eyes fairly open. It consists of an alarm clock with a projecting portion of the alarm mechanism engaging one end of a tripping lever which is pivoted on an upright. The other end contracts with a trigger in a second upright. So that when the alarm is sounded the trigger is released, and a match in a holder actuated by a spring, is drawn across a rough surface, lighted, and carried by a shifting lever over to the lamp wick situated nearby.

A patent for a new street sweeping device has just been issued. This apparatus consists mainly of a receptacle on wheels, one of which is geared to, and furnishes power for an endless band carrying sweeping brushes and revolving around two small wheels set at either end of an oblong metal casing in which are the brushes. The casing reaches from the dust receptacle to the ground, where the lower end of the band brushes catches the debris of the streets, as the apparatus moves along, and sweeps it upward in a continuous stream, to fall into the receptacle.

The matter of keeping the feet dry—especially in winter—is of importance; and the ventilation of shoes, though seemingly a small matter, is worthy of much consideration. A newly patented idea in this particular, is one which employs an inner or middle shoe sole making a rubber cushion and ventilator. To effect this the rubber section is composed of a series of transverse and lengthwise corrugations, at the intersections of which are small perforations; thus permitting the passage of air and giving ease to the tread by elasticity.

A fountain pen that will "come up to the scratch" without fail, is something long desired. An improvement in this branch of invention has been made and recently patented—an improvement that perhaps will be of benefit to the busy man. In this fountain pen there is a single longitudinal gravity feed duct for the main supply of ink, and a separate storage sub-chamber with a series of capillary passages connecting with the feed duct thereby keeping the latter always moist, and facilitating the initial discharge.

Many a railroad accident has been caused by the coming loose of nuts on fish plate bolts. As such can be prevented by a good nutlock, it is a wonder that these have not been in universal use long ere this. A nut-lock, which has been lately patented, is a simple, easy operated affair, consisting of a bent wire rod with one end connected to the side of the rail so as to swing easily, and the other end bent over to form a looped shoulder, against which the upper corner of the nut can bear. The pivot end of the rod is curved downward to form a brace, which effectually prevents the nut from moving.

If inventions of labor-saving appliances for the kitchen continue to go on at the present rate the position of cook will soon become a sinature; and it will only be necessary for the goddess of pots to put the raw food on the kitchen table, touch a button, and ring the bell for the hungry.

One man makes a clock wake the sleeper and light the lamp. Now another inventor makes a clock light the fire while the cook is in bed dreaming of her new bicycle and bloomers. This other smart clock is also of the alarm kind—although it is not for alarming anybody. When the hour for lighting the fire arrives the time piece "goes off," so does a fire-carriage with which it is connected. The carriage slides on a track, which extends from the clock base to the wood to be ignited, being put in motion by a spring released by the clock mechanism. First a match, carried by a sliding match-holder, is struck as the latter moves, and from this the fire carriage is lighted, after which it slides down to the wood and completes the job.

When two people ride a tandem bicycle, one of them has only a back view of the other, and the one in front must view the landscape. But a newly patented invention, for the benefit of sociable riders of the wheel, makes a big improvement on the tandem, at least it should be so considered by the ladies. This new arrangement in wheels consists of the regular bicycle, to which is to be attached to, and directly opposite, the hind wheel, a one wheel vehicle, an upholstered and cushioned affair. The one wheel of the vehicle is on the side of the latter, and revolves on a transverse axle, the inner end of which engages with the bicycle, as does a forward framework projection. Thus the vehicle

is held up. And all the scorcher has to do when he rides with his fairest is simply to mount the wheel and work the pedals; the girl will help do the talking.

It is strange that the wind-wheel is not used more extensively to take the place of hand work in small things, such as washing clothes, churning, etc., since the idea is so easy in adaptation. In the way of churns there was recently issued a patent for an invention that should prove a help to the busy housewife, who has cream to churn into butter. The invention relates to a churn-motor, which is simply a wind-wheel, mounted upon a horizontal arm extending from the central part of an upright support, at the side of which sits the churn. The plunger of the churn is attached to a working shaft which is geared by a crank-lever to the inner end of the revolving wind-wheel shaft. The motion of the churn dasher is up-and-down. The machine when required, can be set going, and the housewife can attend to other duties while the wind makes the butter.

A unique, patented invention is that by which it is intended to transport ships by rail. For this heavy undertaking it is proposed by the inventor to place the ships in tanks partly filled with water, and by this method do away with jarring that would result if water were not used in the work. The tanks are to be placed upon two sets of wheeled trucks—inner and outer—to be operated upon two sets of rails—the narrow gauge running between the outer and broader set. There are provided a system of braces, with cantaliver supports, for the outside of the tank, and counter braces for the cantalivers, having supports against the bottom of the tank and also against thrust-bars suspended under the truck frames between the wheel, and others suspended behind the trucks. This should be a pretty strong get-up. But it will have to be a straight road upon which a long ship can travel overland. And wouldn't passengers enjoy such a trip over the briny rails, where no wild waves could beat or *mal de mer* afflict?

Oil From Peanuts.

A patent recently taken by Prof. Wilson E. Weatherly of Norfolk, Va., through Joseph Leicester Atkins, patent lawyer of this city, is specially interesting as relating to an American product whose extensive uses and great commercial value are not generally appreciated, and as an illustration of the enterprise of the American inventor not only in working towards the advancement of the known arts, but also in practically creating new fields of commercial enterprise.

The invention of Mr. Weatherly relates to a process and apparatus for the manufacture of a variety of oils and other products from peanuts. The value of such products had been perhaps better understood in Europe than in this country, but even there it was not fully appreciated, owing largely to crude and imperfect methods of manufacture in general use. Attracted by possibilities which he discovered in this comparatively new and unworked field, Mr. Weatherly by patient labor and protracted experiment discovered a method of treating peanuts without the employment of a deleterious degree of heat, whereby he is enabled to produce a quality of oil which is equal to the finest olive oil and is undistinguishable therefrom by the best experts.

Prior to Mr. Weatherly's invention it was impracticable to produce, commercially, the high grades of oil manufactured under the improved process, by which not only are the inferior grades produced of a superior quality, but also the high grades in addition thereto. By the patented process the whole nuts are cut and crushed so as to sever and liberate the kernels from the shells and their inner skins, after which by a suitable bath and a gentle heat, the kernels with all essential oils retained are separated out of the mass ready for the press. Valuable by-products in the shape of oil cake, meal, etc., contribute to the economy of the manufacture in practice.

The American Food and Oil Company of Norfolk organized for operation under the patents, has been formed and bids fair to open up a new and extensive industry and to create an increased demand for an important American product.

Women are among the most successful inventors. It is reported that Miss Jennie Wertheimer of Cincinnati, has accepted \$25,000 from a New York firm for her discovery in the way of commercial paper which effectually excludes all possibility of raising amounts on checks, forging names, and the like.

It is said that X-rays are now being used to determine the capacity of hens for laying. The "non-efficients" are easily separated from the producers which ought to be of great value to poultry raisers.

Honesty and Ability of Patent Solicitors.

BY EDWARD P. THOMPSON, M. E.

There is danger of over-looking the incompetent attorney while busy with the denouncement of the man who is tricky or dishonest. Cases are possible in which an inventor may be cheated financially by a smart agent, and yet a fair quality of service may be rendered; but no exception occurs that will show the accomplishment of firstclass results by a half prepared person, no matter how trustworthy he may be. I am not preaching on the subject of honesty and morals, for every inventor will make the utmost attempt to dodge the fraudulent man without much advice, and yet inventors are apt to run to any agent so long as he has his sign up and is known to be reliable. The requisite that is too often overlooked, the one that is most difficult of attainment, and the one that is the most important, is mechanical knowledge with experience; or in other words, the perfect attorney must be a mechanical expert, while the second condition equally as important but readily recognized by all inventors, is a knowledge of, and an experience in the courts, patent law decisions and the patent office rules of practice. The third qualification is literary ability.

How few attorneys are graduates of a technical college or school, how few have been scientific students further than in acquiring a superficial knowledge by private study—almost worse than none;—how few are qualified for membership in any of the scientific or mechanical, or engineering societies; how few could write an article for a technical periodical without its being lodged in the waste basket; and how few, therefore, could prepare such a clear, exact and complete description of an alternating current dynamo, or of a steam engine releasing gear, or of a bicycle, or of a printing machine or of a typewriter that would stand the critical examination which occurs when experts for a purchaser of the patent, or before the courts criticize it; the specification and claims are literally torn to pieces by the experts. The whole value of the patent, assuring the invention to be novel and valuable, depends absolutely and alone upon the exact meaning rendered by the wording of the specifications and claims. How many hundreds of attorneys have attempted this task, not even realizing their own incapability; because a man with a little knowledge of a subject usually thinks he knows all about it. No other profession calls for such expert experts. Take an electrical engineer; his specialty is electricity and consequently he need know nothing about bridges—that is, about civil engineering. Or, consider a chemist. He requires no knowledge of printing machines, that is, of mechanics. Or let the profession be that of a mining engineer. What does he know about law? Again, how little the lawyer pure and simple, who naturally spends his time in suits over real estate, debts, damages, etc., etc., knows about agricultural machines. Men of any profession seldom undertake cases in some other line. The most perfect patent attorney is he who is versed in all departments of science, engineering and mechanics, because one day he will have, say, a kinetoscope invention to be patented, and the next day, a new process of dyeing; the next day, an electric meter case, and then a linotype machine, photographic invention, etc., etc., without any choice whatever on his part.

The only remedy for overcoming the seeming impossibility of hoping to secure a perfectly prepared solicitor, would be the existence of a specialist in each department, but this would scarcely, at the present day be feasible, although the best attorneys generally become rooted in some specialty in which a large proportion is all on one subject, and he gradually becomes experienced in such a variety that he is more and more competent in all, assuming, of course, that to start with, he has a solid foundation in one or in all physical, chemical engineering, or mechanical directions. The preparation of the specification is simple as compared with the drafting of the claims, because the same involves the highest literary talent and an education coupled with a knowledge of patent law, while the mechanical training is still the most important part. An ideal claim is so difficult of composition, that five years' experience, at the least, with all the above acquirements are about enough to enable a beginner to draft it. To formulate an accurate proposition in geometry is easy in comparison.

Now let us pass on to the prosecution of the application in case other patents are cited as alleged anticipation. They may in reality not meet the invention. The claims may have been unnecessarily too broad or too narrow, or vague or in some other respect, not absolutely perfect, or the opinion of the examiner may not for good reasons be conceded to. In the first place, the references must be studied very carefully and the various inventions thoroughly understood. This is a small part of the duty of the solicitor. The

specifications and claims must be compared with each other, both specifically and generically with an unusual power of discernment. After all is understood, the knowledge of patent law must be applied to decide whether, from a legal standpoint the novelty over the state of the art warrant the right to patent protection. Finally the redrawing of the claims to suit the circumstances. The utmost care, skill and knowledge are required in these final readjustments for after the certificate of allowance has been issued the last chance of improving the protection is lost, except that if any undue limitation is discovered, it can be remedied only by petition and by showing that a refusal to reopen the case would work an irreparable injury.

Accordingly it becomes apparent that the solicitor must be prepared by his own knowledge and practical experience to analyze the various allied inventions and to express by proper claims, the exact scope of his client's invention by means of legal patent claims. I have pointed out, only partially however, the various requirements, but as a climax to all, we arrive at the item of responsibility, and it is right here that the question of honesty arises. A man may avoid crime or frauds and yet do much harm where only the most vigorous investigation could prove that he slighted some important step in applying for a patent. Here then is a loop hole whereby the competent attorney may be irresponsible. Suppose for example that, while examining the citations he should find that the claims could be broadened or left as they are with reasonable expectation of allowance; but was too busy with something that paid better, to devote the proper time and thought, or was too anxious to get at least some kind of a patent even if it were not the best in view of the state of the art. I say that such an action or want of proper action illustrates what I mean by one of the worst kinds of dishonesty, generally called, however, by a better sounding name—irresponsibility. Perhaps, again, the attorney might think that the invention was of no practical or money value and that little responsibility rests upon him, and finally the old plea suggests itself—that he will never be found out.

In order to make an attorney have a true and strong sense of responsibility, he should make the assumption that the patent, if obtained, will be worth many thousand dollars; or he should assume that the invention belongs to himself and at the same time that it is worth a million dollars. Then he will strive for the best claims. How many of us, who are solicitors have been perfect in this respect? On the other hand, I am not referring to the matter of offering opinions to the inventor as to the value, and to the too much overvaluing of the invention in his eyes so as to encourage him to apply. This procedure is but a dishonest trick: where the invention is known to be worthless, but having decided for good reasons to apply, the solicitor should keep in mind the best interests of the client, and if he does not, he may want as much real inquiry as if he were, out and out, fraudulent.

In spite of all his consideration of the qualifications, many an inventor may still hold that such remarks about experts may well apply to difficult cases like automatic telephone exchange systems, polyphase electric motors, Corliss engine improvements, processes in electro-metallurgy, mathematical instruments of precision, etc., etc., but when it comes to little devices which may be named by the hundred, any one can understand the same and be a suitable attorney, provided only he knows patent law and practice, and has ordinary intelligence. This is false logic. What is true of one kind of invention is true of another, except in degree. Even in simple devices, the mechanical expert is needed.

No simpler device could probably be suggested than the bicycle frame, being only a few tubes fastened together, and yet mathematical considerations are necessary and a scientific training in bridge building, angles, struts, ties, braces, triangles, joints, etc., etc., must be understood in an engineering sense, or else the claims can not be drafted. Or take a mouse trap. No simpler example could be named. The mechanism or construction, involves for its explanation a high degree of mechanical knowledge, for it will not be sufficient simply to set forth the exact construction, but to describe in a claim the gist of the invention in generic terms and then in a specific direction, so as to cover not only the exact mechanical construction, but also, when the novelty is of a high enough degree, a general construction that will include and protect several varieties without the necessity of too many patents. Sometimes an invention has such a wide scope and there are so many meritorious ways of carrying it out in practice, that the attorney must, in one patent be able to incorporate a set of broad claims to include them all, a set of specific claims to cover one variety, this being as much as permitted in one patent by law, and then the other patent may protect the respective specific devices when their importance is of sufficient practical value and legal necessity to warrant further patent—this question being left until the allowance of the broad claims is

certain. Qualifications of attorneys for such purposes often come into play, and in some cases an knowledge of mechanical and science and literary ability to a much greater extent, even in the case of simple devices, than would be possessed by the too numerous incompetent solicitors. The more expert the solicitor both in technical and patent matters, the more the inventor will gain in the way of protection by a patent, while if expert only in patent law or only in technical knowledge the patent will only be the means of donating the invention to the public.

An Automatic Lumber Measure.

A boon to lumber dealers, architects and all others handling any great amount of lumber is Mr. George Kruger's automatic self-registering lumber measure which is now in the hands of Messrs. R. J. Baker & Co., promoters, Baltimore, Md. Mr. Kruger is an architect and builder of Johnstown, Pa., and he, handling large amounts of lumber frequently, found a discrepancy according to invoice and his measurement—looked about him to devise some means to prevent this difficulty, and after four years of study and experimenting hit upon this invention which is probably today the only speedy as well as accurate method of measuring lumber.

The measure is adapted to any length, width, or thickness, can be set in a moment to measure any piece of lumber and will measure more lumber in the hands of one man and more accurately than can be done by two men, by any other means, takes in all fractions of an inch and does not require to give and take as is done by the common lumber rule. It has an attachment that prevents destroying the record of measurement by idle curiosity seekers meddling with it, by simply pushing a button to zero after operator has done measuring, preventing the instrument from registering.

Inventions and Labor.

The Utica Press observes that "some idea of the extent to which modern inventions have broadened industry is furnished by the statistics of the various enterprises which depend upon electricity." The New York Herald comments on this as follows: "True, and one can hardly find a better illustration of the falsity of the old cry that improved machinery is an injury to labor. More than two millions of skilled workmen and ordinary artisans get a living out of electricity. There are the telegraph and the telephone, which give constant employment to a large army of laborers. Then the electric light system extends to all parts of the country and demands another army, almost equally large. Electricity may deprive a dozen men of their old time tasks, but it calls for two dozen to do other tasks, with good wages. There is no use in having a crick in your neck looking at the past and warbling about 'the good old days.' There never were better days than these, and there never were more contented people than can be seen right here and now."

Street Indicator for Street Cars.

James Steffen of Covington, Ky., has invented "an automatic street indicator." As the name implies, its purpose is to indicate the next stop on an electric car line. The device consists of an endless band of cloth working over two cylinders. The name of every street or stop on the entire circuit is painted on the band in the order approached by the car. At each street crossing a loop of wire is attached to the feed wire overhead, which loop projects to one side of the main wire several inches. On the trolley pole is a separate wire leading current into the device, but the current is continually broken except when contact is made between the projecting wire at the end of the trolley pole and one of the loops at the street crossing. The closing of the circuit causes the revolving of the band and one ratchet exposes a new name.

The Great Power of Sunshine.

A French scientist (M. Monchoo) calculates that in an average day the sun will pour on two and a half acres of ground, heat which might be turned into energy equal to the muscle power of 4,103 horses. He believes that this heat might be utilized and made to do the work now done by steam and electricity. He found that by condensing the heat playing on less than a yard and a half of ground he could boil two pints of water. By arresting sunshine and condensing it, small steam-engines have been operated successfully in Paris, but nothing has yet been done to realize practically the great hopes of revolutionizing civilization by using directly the enormous power which comes to us daily from the sun. This power is calculated at that of 217,316,000,000,000 horse.

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There were issued during the period comprising the four weeks, ending Nov. 9, 1897 the following:

Patents.....	1755
Designs.....	112
Trade Marks.....	152
Labels.....	3
Prints.....	3
Reissues.....	4
	2,029

Mr. R. J. Baker, of the firm of Baker & Co., promoters, whose card appears in another column of this number, is the inventor of a novel little device for stamp collectors. It is called the "Stamp Catcher's Handy Book" and is intended as an advertising medium for professional and amateur stamp collectors. It is just the thing for the "stamp fiend" and that means a great many persons—the stamp fad having come to stay, evidently. This little booklet can be utilized to advantage by merchants and others as a means of advertising their business. Their card can be printed on the cover and the booklets (vest pocket size) distributed free.

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The order disbaring John W. Martin and Oswald L. Martin, of Zanesville, Ohio, from practicing before the department of the interior has been revoked.

There is now on exhibition at 519 11th street, Washington, D. C., a novel typewriter, made by the Smith Premier Company. It is a machine fitted with all the characters for the use of the Siamese government.

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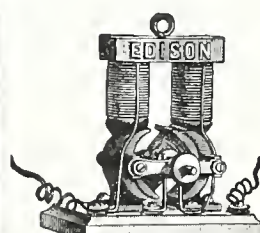
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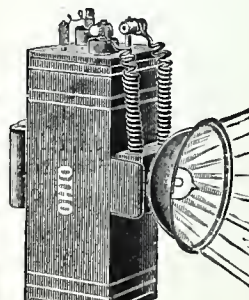
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4. Whether there is any danger of the patent infringing others or of being infringed.

THESE QUESTIONS every inventor should be able to decide understandingly, without seeking legal advice. Each and all of them are subjects upon which the patentee is liable to make mistakes at the very beginning of his efforts to advance the patent to a paying issue. These mistakes not only cause unnecessary trouble, delay and expense, but are liable to endanger the value of the patent, and in some cases actually shorten the term of seventeen years for which the patent is granted. This book will tell you what these mistakes are and how to avoid them; how to overcome the difficulties that must be encountered in trying to sell the patent, or starting and continuing the manufacture under it; how and when to obtain a legal foreign patent, and the reason why infringement suits are so often encountered by patentees.

SYNOPSIS OF CONTENTS==Patented Inventions.

1. Average number of patents which pay the inventor. Co-operation of capitalists indispensable, and how obtained. The three necessary requirements for the success of a patent. The mistakes liable to be made at once by the inventor. How to classify and treat communications received. Time to allow for bringing the patent to a paying issue. The financial requirements to be met by the inventor.

Expert Searches and Opinions.

The first objection usually made by manufacturers to every invention. The first step to be taken by the inventor after the patent is allowed. First mistake to avoid.

Patent Agencies.

Their communications to patentees, with different methods of disposing of patent rights. The reasons why inventors should find out the character and business standing of an "agency" before entrusting their patents to them. The frequent results of neglecting this precaution. Two courses to pursue to obtain a reliable guarantee of trustworthy methods.

Foreign Patents==Peculiarities of Laws of the Various Countries.

Why inventors should post themselves upon the patent laws and requirements of Canada and foreign countries before trying to duplicate a U. S. patent. How differing from the patent laws of the U. S. Reasons why other patent laws cause many Canadian and foreign patents issued every year either invalid or worthless; or act in shortening the life of a U. S. patent. Illustrations of court decisions in some important patent cases. Total cost of obtaining and holding a foreign patent for the full term. The annual tax imposed. Law of compulsory manufacture. Law against importation of the invention. Trade-marks in foreign countries. Tabular statement of fees and requirements for each country.

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Two mistakes liable to be made by the inventor in his first efforts to bring the patent into general notice. Why they may cause either a depreciation in the value of the patent or the absolute loss of the patent right. Course to pursue to effect a legal and valuable sale of the patent. The first steps to be taken by the inventor. The three obstacles to be prepared to meet. The principal objection usually made by capitalists to every new invention. The four principal points they will take into consideration in reference to the purchase of a patent. How the inventor can prepare himself to answer these objections. Kind of inventions that sell the most quickly. Different ways of settling the amount of purchase price by manufacturers. Form of assignment of the entire interest.

Selling the Right to Manufacture a Patented Article; or, the Use of a Patented Process==State Rights==Form of Licences.

Under what conditions this course is to be commended, and when not to be. Form of assignment of state or territorial interest.

Assigning to Manufacturers, With Royalty to the Inventor.

The meaning of royalty. The amount paid on different kinds of inventions. When the payment of royalty can legally stop before the time specified in the contract. The contract as affecting the interests of the inventor and manufacturer. Contingencies to be provided for in the contract by the inventor. When legal action can be brought to enforce the terms of the contract. Forms of licenses, exclusive and not exclusive, with royalty.

Manufacturing by the Inventor; or, Selling Minority Interests Before Starting the Manufacture.

Kind of inventions that can be manufactured by the inventor and placed on the market with small risk. How to test the probable demand. Examples of successful manufacturing by inventors. The companies that make a specialty of manufacturing small inventions. Cautions to be observed. Two ways in which more complicated inventions can be manufactured by the inventor. Examples.

Organization of a "Stock Company" to Advance the Manufacture or Use of a Patented Invention.

Two methods given by which financial risk may be made small enough to induce capitalists and business men of limited means to invest in shares for the manufacture or use of a new article or process under a patent. The names of factories, and where found, conducting a successful business with capital raised on one of these plans. When infringement suits develop in a "partnership" who are legally liable. Meaning of assignments, grants and licenses.

Infringement of Patent Rights.

Why a patent gives uncertain protection to an inventor. How decisions of the Patent Office can be set aside by the courts. What constitutes an infringement. How to determine the infringement of a patent. Those who can bring action for an infringement. Those who are liable for infringement. Infringement of patents specifically classed under four heads, general rules defining infringement under each.

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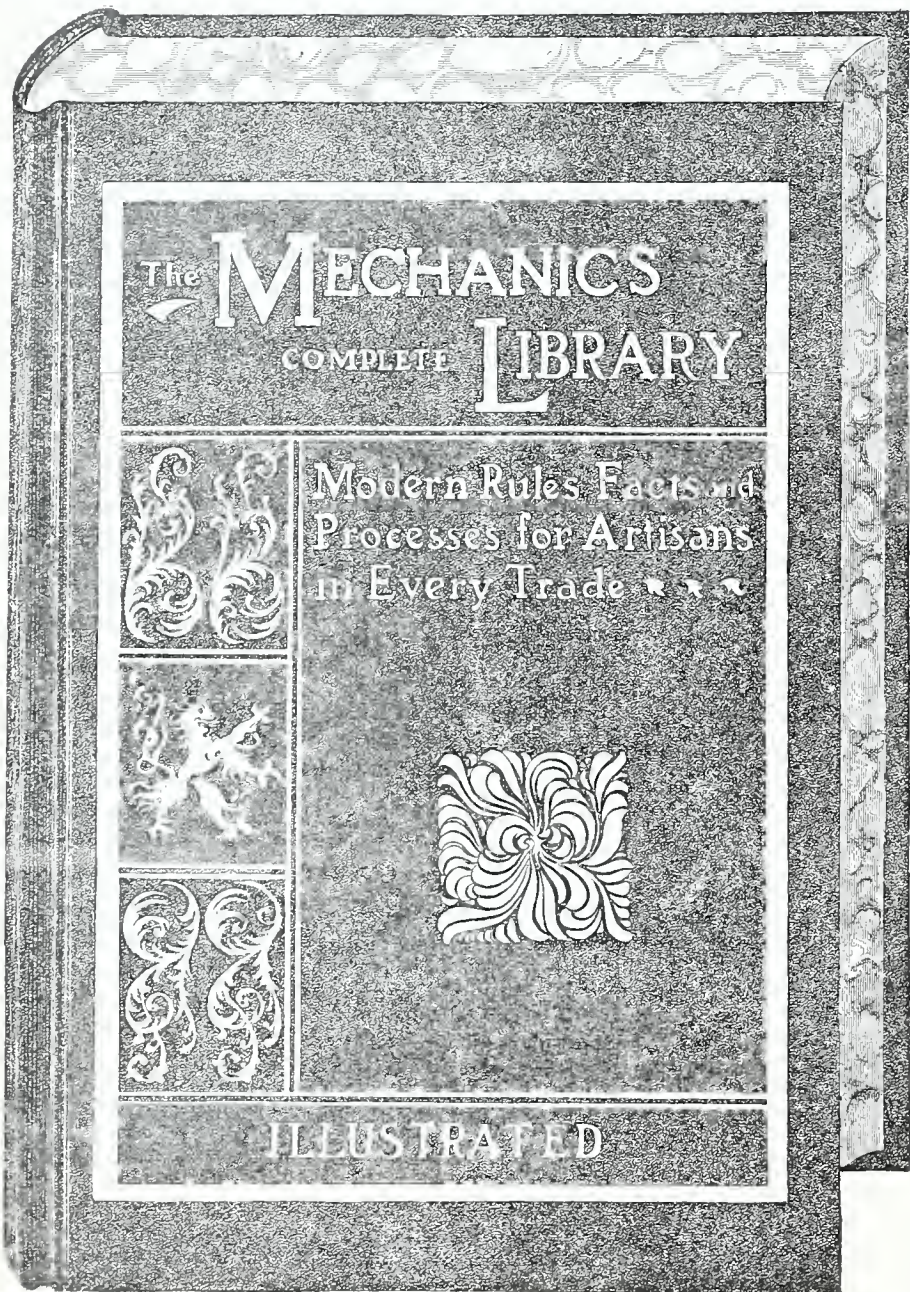
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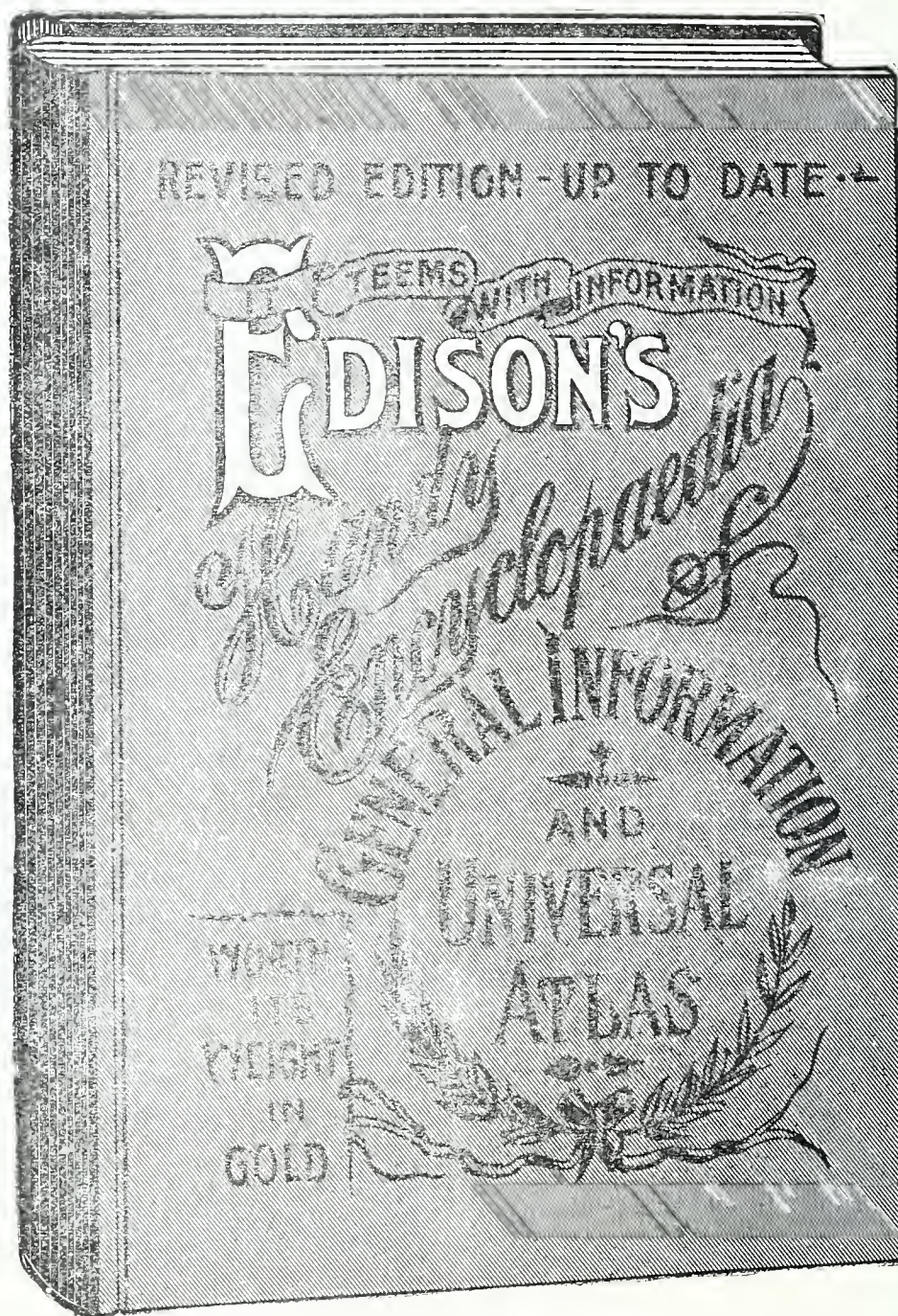
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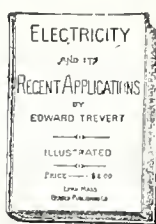
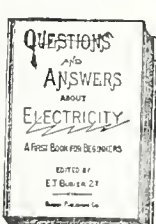
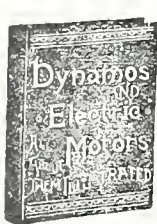
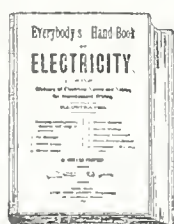
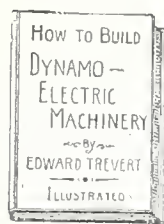
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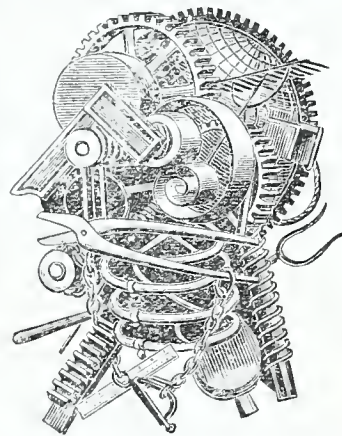
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Proposed Means of Transportation Up the Yukon.

Perhaps the most important question of the moment has been solved by the perfecting of a transportation system on the snow sledge principle to reach the Alaska and Klondike region with safety, speed and comfort at a moderate cost. The first and most important achievement to be considered in this connection being the saving of life, as it will be the means of conveying food, supplies and necessities early in the spring to thousands who then will be in a semi-starving and helpless condition. The company immediately about to be organized promises to have trains running to Dawson City on or before the 1st of March, leaving Dyea or Juneau via the Taku Inlet and River up to Lake Teslin and by the Hootalinqua River to the Lewis

least space, but wood can be obtained all along the route, if required.

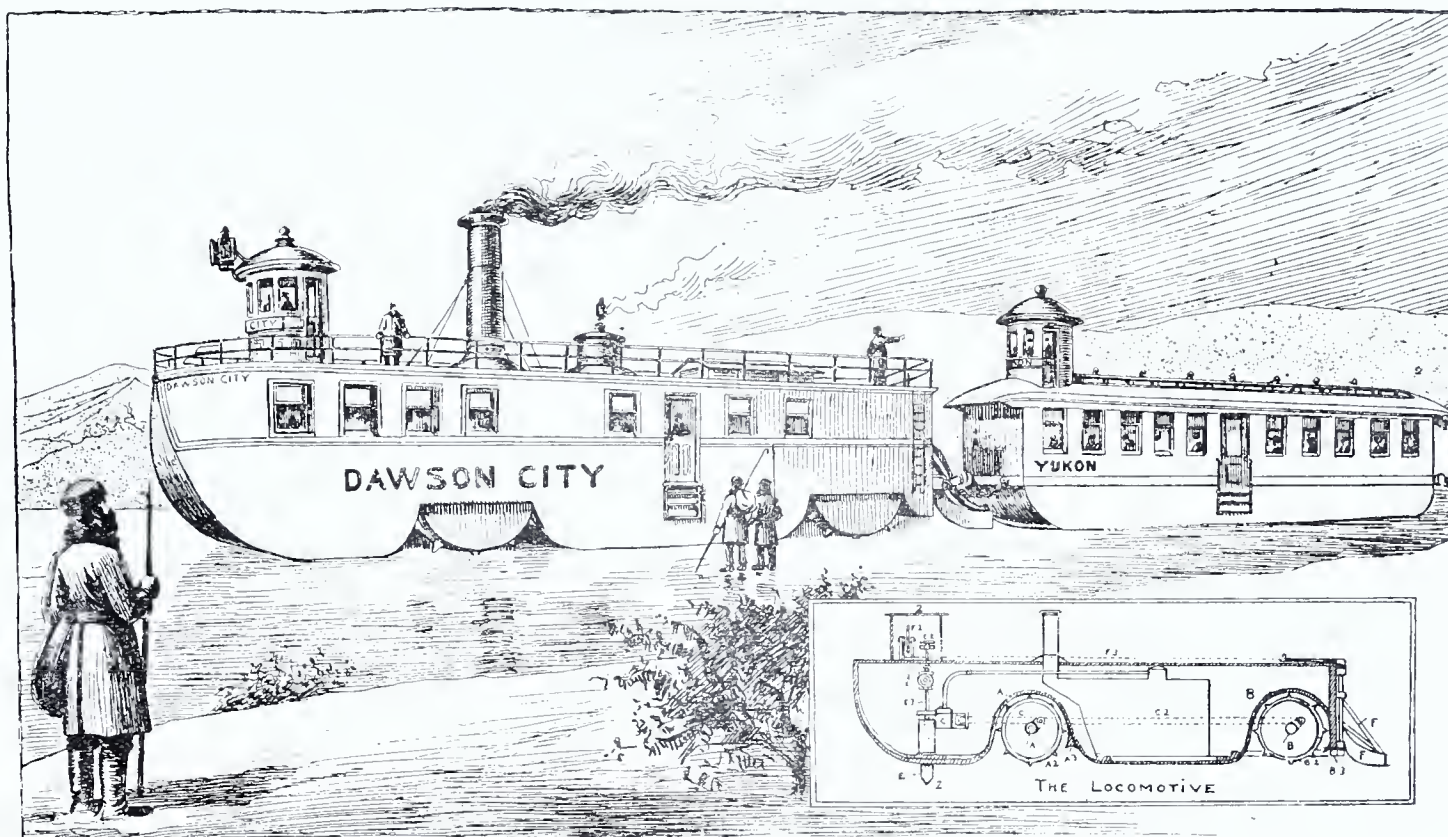
The comfort for the passenger traffic has been carefully considered and will be far in excess of expectations of those who contemplate visiting the undeveloped Klondike and Alaskan districts. The car will be on springs and will be equipped with reclining chairs, which can be so operated as to form a comfortable chair by day and a luxurious couch at night, but regular sleeping berths will also be attainable at an additional cost to those who desire such accommodation. Good substantial meals will be furnished en route, the cost of which will be included in the regular fare and a liberal amount of supplies will also be carried free of additional cost.

The freight cars will not materially differ from

telegraphic communication to the Alaskan territory and ultimately making it possible to make connections with the now existing Siberian telegraphic land lines.

Much apprehension exists in the minds of intending travelers to the Klondike as to the possibility of getting into Dawson City by steamer early in the Spring. It is impossible by boat.

A great deal of misrepresentation is being made by the various companies selling tickets to Dawson City. Dr. Jackson, superintendent of education in Alaska, says that the ice may keep boats out of the Yukon till June, and two years ago it was the middle of July before they got in. Dr. Jackson further says that there are not sufficient supplies for the winter, and that the dangers of starvation will cer-



NEW FORM OF SNOW SLEDGE FOR TRANSPORTATION IN ALASKA.

and so reach the waters of the Yukon direct to Dawson City. This is a perfectly practical route for sleds with no impassable and dangerous passes to encounter and can be accomplished with thorough comfort, safety and despatch.

The sketch of the train herewith so thoroughly explains the motive power that it is only necessary to make brief remarks thereon. The propelling principle of the powerful locomotive consists of two drum wheels running the full width of the sled, each separated in the centre so that they can be utilized as an auxiliary steering apparatus in addition to the rudder if necessary; these drum wheels are corrugated, these corrugations grasping the snow as the wheels revolve and a speed of twenty miles an hour and over can be attained when the conditions are favorable. There is no difficulty regarding fuel, as tar or oil burners will be used, as they take up the

ordinary box freight car of the present day; the whole train, including the locomotive, have flat bottoms which consist of steel plates two inches thick, and the speed of the train can be checked by heavy steel rods being driven down into the ice or snow from either side of the car. It may occur to those interested that the immense weight of the cars would sink them deep into the snow; such, however, is not the case; as forty tons will only sink two inches into soft snow. It will be at once seen that no expensive road-bed is necessary as that is made by the train as it proceeds. Communications have already been received from the authorities at Washington regarding regular mail service to the Yukon district, and arrangements will be made with the various express companies for the delivery of their consignments. This transportation company will also be the means of at once opening up

tainly be encountered unless some means of conveying in supplies is attained.

Patents are pending on all the principles involved and the company to be formed will undoubtedly pay immense dividends to the fortunate stockholders.

The Manufacture of Carbide.

The Electro-Chemical Manufacturing Company has been organized under the laws of New Jersey, with a capital stock of \$1,000,000. The incorporators are G. W. Vaillant, Dr. L. K. Bohm and Charles N. King. The Company will manufacture calcium carbide under the patent of Dr. Bohm. This patent was originally filed November 5, 1891, and issued December 24, 1895. It is entitled, "Material for Incandescent Conductors," No. 552,036, and under it Dr. Bohm claims to have the basic patent for manufacturing calcium carbide by the action of the electric current.

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AT LAST a decision—and a just one—has been reached in the case of the French exhibitors at the Chicago World's Fair against the management for losses by the fire in the fair grounds, of rare and valuable tapestries, vases and other articles. The amount claimed and awarded by Judge Grosscup is \$75,000.

ATTENTION is called to the article in this number contributed by Prof. Edward P. Thompson, M. E., under the caption "Inventius." It is a most charming and fascinating extravaganza, the reading of which will impress one with the sublime part invention has played in the advancement of mankind and the progress of the world.

THE article on another page in reference to the conference of the International Union for the Protection of Industrial Property, now in session at Brussels, will be read with interest by inventors and others, interested in securing better protection throughout the world. It is a complete history of all international conferences held up to this time.

THE *Manufacturers' Record* has a pointer that the majority of the armor-plate board favor Birmingham, Ala., as the site for the proposed government plant. The INVENTIVE AGE predicts that the government will finally make advantageous arrangement with present armor-plate makers and that government ownership of a plant is in the dim and uncertain future.

NOTWITHSTANDING the refusal of the authorities to approve the use of compressed air as a motive power on one of the street railways of Washington, its use is about to be adopted by the Illinois Central railway on its suburban lines at Chicago. It is understood the Hardie system is the one under consideration, and the installation will be under the charge of the American Air Power Co., of New York.

IF ANY inventor is in doubt about the registration of an attorney or his good standing before the patent office—and the inventor should deal with no other—he should write the INVENTIVE AGE, Washington, D. C., for information. The "Directory of

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ONE of the best appointments made by President McKinley is that of James T. DuBois to be consul at St. Galle, Switzerland. Mr. DuBois is a native of Pennsylvania, but spends most of his time in Washington where he has extensive interests. He has one of the finest homes in the city on Columbia Heights—now occupied by Senator Mason. Mr. DuBois was consul at Aix la Chapelle, Germany, under the Arthur administration and removed for "offensive partizanship" by President Cleveland. He speaks both French and German fluently and as a public speaker and journalist did much for the republican cause in the last campaign. He was the founder of the INVENTIVE AGE and built the beautiful block, now occupied by this journal, especially for its home. He is a scholarly, polished gentleman and although there were many applicants for the place, the persistency of the honorable Galusha Grow of Pennsylvania, to whom Mr. DuBois owes his appointment, was irresistible and convincing.

NO CITY in the United States is better known throughout the world than Dayton, Ohio, and all because of the immense industry that has sprung from the invention of the cash register. And the success of the National Register Company has been due largely to the business sagacity of Mr. John H. Patterson president of the company. His tour abroad, has brought prominently to the fore his system of employing labor and providing unusual comforts for his employees. On his return from a tour of the continent he was given a great reception by his employees and fellow townsmen, and in response to a toast spoke entertainingly of his experiences abroad and the remarkable enthusiasm with which the product of his American factory are being received in all the foreign countries.

ANOTHER gigantic fake has been knocked out by the post office department—the "missing letters" humbug. It is a species of lottery more pernicious than the old Louisiana Lottery Co. The wording of these advertisements is so ingenious that nearly every one who reads them is satisfied he can comply with the requirements—parts with 25 cents to \$1.00, and—waits—in vain—for the prize. The court of appeals in the District of Columbia has also declared the "trading stamp" scheme unlawful. It is refreshing to observe such activity on the part of the government in ferreting out frauds.

THE inventive genius in Japan is not so well developed as has generally been supposed. Patent laws were enacted in that country in 1890. The average number of applications yearly since that date is about 1,200 and the number of patents registered about 325. Even a Japanese paper, in comparing the inventions in Japan with those of other countries says the most of the Japanese inventions are "not worth looking at." Doubtless from this time on invention in Japan will broaden out and improve in the same ratio as her manufacturing industries develop and thrive.

MAJOR HANDY succeeded in securing floor space for American exhibits at the Paris exposition of 1900 equal to 600,000 square feet. This is a vast space and it ought to be well filled. Every effort will be made to make of this exposition a still greater triumph than the World's Fair at Chicago in 1893. All the nations of the earth responded liberally and were well represented at Chicago. This government must make an exhibit at Paris commensurate with the importance of the occasion.

BY THE provisions of the will of the late George M. Pullman a school for manual training is to be established at Pullman and \$1,200,000 is to be used from the Pullman estate for its endowment.

Improper Advertising Methods.

Investigation of one fraud generally leads to the discovery of another. The result of the celebrated Wedderburn case has had the effect of turning the attention of the commissioner of patents to the means used—the form of advertising and representations made—by practitioners to obtain business, and the result promises a very wholesome change in the methods prevailing prior to the advent of the present administration. Even reliable and trustworthy attorneys had become lax in their methods, and guilty of sending out misleading literature. A halt has been called and reform is now the watchword all along the line. The inauguration of a register system, wherein only the names of those attorneys who are in good standing before the office can be recorded, was a wise step. After January 1st no attorney can practice before the patent office whose name does not appear on this official record. The effect of this has been to bring to the attention of the commissioner certain misleading advertisements of attorneys—the improper use of the words "Patent Office," as "Patent Office of John Smith," "Branch Patent Office," etc. There can be but one "Patent Office" and that is the one established by act of congress, and those words cannot be properly used by private firms. A flagrant case now occupying the attention of Assistant Commissioner Greeley is that of the firm of Thos. G. Orwig & Co., of Des Moines, Iowa. This firm advertize their business as the "Iowa Patent Office" and in some literature a design or cut has been used containing the words "Branch Patent Office, Thos. G. Orwig & Co." Mr. Orwig has been in patent practice over thirty years and it is understood no complaints other than this form of advertising his business appears against him. But the rule of the patent office must be uniformly applied and Mr. Orwig has been refused registration until he shall remove this objection. Mr. Orwig has appealed to Commissioner Butterworth and assumes a defiant attitude. Conscious of his integrity and honor otherwise he disputes the right of the patent office to exercise a censorship over his manner of obtaining business. He maintains that the office has only to do with the conduct of the business before the office and that he, or anyone else, has the right to advertise their business under any name they choose. Of course it is annoying to Mr. Orwig, who has grown grey in the business, to be obliged to change his system at this late date but he will either have to do it or shut up shop. The contention of the patent office is logical and the conclusion correct and Mr. Orwig should understand that it is not the individual, the commissioner is after in this case, but the system under which unscrupulous persons may and do take undue advantage of the more conscientious practitioners. Obviously exception cannot be made in Mr. Orwig's case, no matter how honest he may be.

This same question has recently been brought to the front in a London case in court. *Invention* of the 6th ult. gives some of the particulars in this case, which are interesting as bearing particularly on the recent ruling of the United States patent office that private firms cannot use the words "Patent Office" in a manner liable to mislead the inventor. The action was an application to restrain Messrs. Hughes, Eli and Hughes, of 76, Chancery Lane, from dealing with a sum of £147 standing to their credit at the Union Bank, Chancery Lane. An inventor went to London to consult with an attorney named Dicker. He had lost his address and determined to enquire for him through the government patent office. He met a policeman and asked him where he should find the patent office. He was referred to a board sign only a few yards distant bearing the words "Patent Office" in large letters. Believing this was the government office he entered and inquired for Mr. Dicker's address. He was shown into an inner office and the short of it was he was induced to part with £200—on account of obtaining patents in England and all foreign countries. Plaintiff went to his brokers and ordered certain

other sums paid, and thereupon discovered that he was not dealing with Her Majesty's Patent Office. The next day he secured legal counsel, and Lloyd's Bank at Rugby was wired to stop the check. A reply came back: "Check presented and paid by telegram 10:20 this morning to Union Bank, Chancery Lane." The plaintiff then commenced proceedings to restrain the defendants and the Union Bank from dealing with his money, but before an order was obtained some £53 had been drawn out by the defendants. In delivering judgment, Mr. Justice Romer said: The plaintiff's case is in effect this and it is one that, in my opinion, he will probably establish at the trial—that he was induced to part with a sum of £200 by the fraudulent action and conduct of one of these defendants representing Messrs. Hughes, Eli and Hughes, who, having obtained his money, pay it into the bank in their own name and proceed to draw upon it, until stopped by the *interim* order of this Court, which the plaintiff obtained from the vacation judge; and the question is whether, in these circumstances, I ought not to retain that money until the case can be tried. This is the plaintiff's own money, and, in my opinion, there is every possibility that, unless I protect it now, he will never get it at all, even if the action should go in his favor. It is said that there is a rule of law that prevents me from protecting that money till this case can be tried. In my opinion there is no such rule. This court has ample jurisdiction in cases of this kind to protect money and property till all questions raised concerning their ownership can be properly tried. In equity that money was still the plaintiff's. I therefore order the Union Bank to pay this £147 into Court; and I then dismiss them from the action, their costs being paid by the plaintiff, without prejudice to the question by whom they are ultimately to be borne."

IN ANOTHER column appears a liberal quotation from a little booklet, of which Mr. Joseph W. Buell, of DuBois & Buell, this city, is author, the subject being interesting to every inventor. Mr. Buell believes there is a way of determining, in a reasonable percentage of patents issued, the real or approximate value of the invention. Mr. Buell first analyzes and classifies the invention. He then confronts the inventor with all the obstacles he is likely to meet with in attempting to sell or promote his invention, points out the rocks on which inventors in the past have foundered, turns on the light of reason and points out the dangers of over-estimating values and underestimating obstacles—in short attempts in a novel and original way, and with a marked degree of success, to blaze the way through the almost impenetrable jungle in which the average inventor finds himself upon receiving letters patent and attempting to realize on his genius.

A DECISION of more than ordinary importance was handed down by the U. S. Circuit Court of Appeals, Third Circuit, in the case of the National Harrow Co. vs. Hench et al. It was a decision against restraint of trade. It was a decision against trusts and combinations formed to prevent competition in business. The National Harrow Company was organized to obtain control of all patents in relation to spring-tooth harrows and thus control the output and price. Over twenty firms went into the deal. In a nut shell the court held that while patents confer a monopoly as respects the property covered by them, they convey no right upon owners of several distinct patents to combine for the purpose of restraining competition and trade." Such combinations are held to be conspiracies against the public interest and abuses of patent privileges. The syllabus of the case appears on another page.

THE *American Machinist* passed the twenty year mark and the November issue took pardonable pride in reviewing its career. It is an excellent magazine for the mechanic and engineer and Editor Miller has a well organized editorial force. The magazine is full of good things—the AGE would copy sometimes—if the *Machinist* was sent regular—to adorn our library—where the leading technical journals of the world are kept on file.

Changes in Patent Office Rules.

Important changes in the rules of the patent office take effect on January 1st. These changes have been made in accordance with an act passed at the last session of congress.

Previously the publication of an invention has not interfered with the right of the inventor for a patent, provided he could prove priority for his device. The new rules provide that no application is patentable if it has been described two or more years before the filing of the application.

Heretofore if a foreign patent has been taken out before an American patent, the term of the latter was limited to the expiration of the foreign patent, which often results in the practical loss of many valuable patents by giving them a very short life. The new rules do not place this limitation of time, but if the period between the two patents is more than seven months no American patent will be granted.

Formerly preference in acting on a patent was given to inventions deemed of especial importance. This preference was given in cases deemed of importance to the government, especially to the army and navy. Now cases will be made special only when the department interested is personally represented before the patent office in asking for such preference. This method, it is believed, will cause cases to be made exceptional only in most important cases. The amendments to be promulgated follow:

24. (First paragraph.) A patent may be obtained by any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, before his invention or discovery thereof and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in the United States for more than two years prior to his application, unless the same is proved to have been abandoned, upon payment of the fees required by law and other due proceedings had.

29. The receipt of letters patent from a foreign government will not prevent the inventor from obtaining a patent in the United States, unless the application on which the foreign patent was granted was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country.

31. (Last paragraph.) The application must be completed and prepared for examination within one year after the filing of the petition; and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action thereon (Rule 77), of which notice shall have been duly mailed to him or his agent, the application will be regarded as abandoned, unless it shall be shown to the satisfaction of the commissioner that such delay was unavoidable. (See rules 171 and 172.)

39. (Section 1.) The following order of arrangement should be observed in framing the specification:

(1.) Preamble stating the name and residence of the applicant and the title of the invention.

46. The applicant, if the inventor, must make oath or affirmation that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent, that he does not know and does not believe that the same was ever before known or used, and shall state of what country he is a citizen and where he resides. In every original application the applicant must distinctly state under oath that the invention has not been patented to himself or to others with his knowledge or consent in this or any foreign country for more than two years prior to his application and that no application for a patent has been filed in any foreign country by himself or his legal representatives or assigns more than seven months prior to his application. If any application for patent has been filed in any foreign country by the applicant in this country or by his legal representatives or assigns, prior to his application in this country, he shall state the country or countries in which such application has been filed, giving the date of such application, and shall also state that no application has been filed in any other country or countries than those mentioned; that to the best of his knowledge and belief the invention has not been in public use or on sale in the United States nor described in any printed publication or patent in this or any foreign country for more than two years prior to his application in this country. This oath

must be subscribed to by the applicant.

63. (Second paragraph.) The following new applications have preference over all other new cases at every period of their examination in the order enumerated:

(1.) Applications wherein the invention are deemed of peculiar importance to some branch of the public service, and when for that reason the head of some department of the government requests immediate action and the commissioner so orders, but in such case it shall be the duty of such head of a department to be represented before the commissioner in order to prevent the improper issue of a patent.

(2.) Applications for reissues.

(3.) Applications which appear to interfere with other applications previously considered and found to be allowable, or which it is demanded shall be placed in interference with an unexpired patent or patents.

75. When an original or reissue application is rejected on reference to an expired or unexpired domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, and shall also make oath that he does not know and does not believe that the invention has been in public use or on sale in this country, or patented or described in a printed publication in this or any foreign country for more than two years prior to his application, and that he has never abandoned the invention, then the patent or publication cited will not bar the grant of a patent to the applicant, unless the date of such patent or printed publication is more than two years prior to date on which application was filed in this country.

77. (First and second paragraphs.) If an applicant neglects to prosecute his application for one year after the date when the last official notice of any action by the office was mailed to him, the application will be held to be abandoned, as set forth in rule 171.

Whenever action upon an application is suspended upon request of an applicant, and whenever an applicant has been called upon to put his application in condition for interference, the period of one year running against such application shall be considered as beginning at the date of the last official action preceding such actions.

94. (The following is added to rule 94).

(9.) An interference will not be declared between an original application filed subsequently to December 31, 1897, and a patent issued more than two years prior to the date of filing of such application, or an application for a reissue of such patent.

166. Whenever the commissioner shall direct the withdrawal of an application from issue on request of an applicant, for reasons not prohibited by rule 165, such withdrawal shall not operate to stay the period of one year running against the application, which begins to attach from the date of the notice of allowance.

168. Every patent will contain a short title of the invention or discovery, indicating its nature and object, and a grant to the patentee, his heirs and assigns, for the term of seventeen years, of the exclusive right to make, use and vend the invention or discovery throughout the United States and the territories thereof. The duration of a design patent may be for the term of three and a half, seven, or fourteen years, as provided in rule 80. A copy of the specifications and drawings will be annexed to the patent and form part thereof.

171. (First paragraph.) An abandoned application is one which has not been completed and prepared for examination within one year after the filing of the petition, or which the applicant has failed to prosecute within one year after any action therein of which notice has been duly given (see rules 31 and 77), or which the applicant has expressly abandoned by filing in the office a written declaration of abandonment, signed by himself, and assignee, if any, identifying his application by title of invention, serial number and date of filing. (See rule 60).

198. An assignment, grant, or conveyance of a patent will be void as against any subsequent purchaser or mortgagee for a valuable consideration without notice unless recorded in the patent office within three months from the date thereof. If any such assignment, grant, or conveyance of any patent shall be acknowledged before any notary public of the several states or territories or the District of Columbia, or any commissioner of the United States circuit court, or before any secretary of legation or consular officer authorized to administer oaths or perform notarial acts under section 1750 of the Revised Statutes, the certificate of such acknowledgment, under the hand and official seal of such notary or other officer shall be prima facie evidence of the execution of such assignment, grant, or conveyance.

INTERNATIONAL PATENT UNION.

Questions that Will Come Up at the Brussels Convention of Utmost Importance to American Inventors—Propositions to be Submitted by the United States.

The conference of the International Union for the Protection of Industrial Property, which begun its session in Brussels on the 1st inst., is an event of great interest to inventors and manufacturers of this country. Interest in it is world-wide, as year by year the closer commercial interests of the civilized nations emphasize the desirability of more uniformity of patent and trade-mark laws.

At the conference now in session, the United States is represented by Francis Forbes of New York, Alexander Capchart of the INVENTIVE AGE, Washington, D. C., and the United States Minister to Belgium, Mr. Bellamy Story.

Mr. Francis Forbes is one of the best informed men of this country on patent and trade-mark legislation and practice and as the representative of this government at previous international conferences, is thoroughly informed as to the recommendations and propositions of the United States. He is splendidly equipped for the duties imposed as a delegate to the Brussels conference.

In a paper read before the recent meeting of the American Bar Association, and also before the New York Board of Trade, Mr. Forbes recited briefly, the history of the various international conferences that have been held, following the first discussion of the necessity for the international protection of trade-marks, at the Vienna Exposition in 1873. The discussion, as commenced at Vienna, was continued at the congress concerning industrial property held at the Paris International Exposition of 1878. By resolution of that congress a committee was appointed to obtain the consent of the French Government, or, failing in that, some other government to take the initiative in calling an official conference of the commercial nations of the world to formulate a convention for the protection of industrial property. The French Government happily took the initiative and a conference was held at Paris, commencing November 4, 1880, which drafted the Convention for the Protection of Industrial Property, afterward ratified at Paris, March 20, 1883, with very slight changes only. This convention covers patents as well as trade-marks.

This country was represented at the conference of 1880 by Mr. Noyes, minister to France and Mr. Putnam, minister to Belgium, and the following States were represented, viz: Argentine Republic, Austria-Hungary, Belgium, Brazil, France, Great Britain, Guatemala, Italy, Luxembourg, the Netherlands, Norway, Portugal, Russia, Salvador, Sweden, Switzerland, Turkey, United States, Uruguay and Venezuela.

The convention was ratified on March 20, 1885, by the following only of the nations represented at the conference—viz.: Belgium, Brazil, France, Guatemala, Italy, the Netherlands, Portugal, Salvador, Serbia, Spain and Switzerland. Salvador has withdrawn.

Since the ratification it has been adhered to by the Dominican Republic, Great Britain, Sweden and Norway, the United States, Tunis, Denmark and Austria-Hungary with a proviso of legislative ratification.

The salient features of the convention (so far as relates to trade-marks and trade names) are:

Article 2. That citizens of each of the contracting States shall enjoy in all of the other States of the union the advantages, so far as concerns trade-marks or trade names, that the respective laws thereof accord to citizens; they shall have the same protection as the latter, and the same legal recourse against the infringement of their rights, subject to the formalities and conditions imposed upon citizens by the domestic legislation of each State. Article 6. That a trade-mark regularly registered at home shall be registered and so protected in all the other States of the union, subject to refusal only if the object for which it is asked is considered contrary to good morals and to public order. Article 8. That trade-marks shall be protected in all the countries of the union without registration. Article 9. That every production unlawfully bearing a trade-mark or commercial name may be seized on importation into those of the States of the union in which such trade-mark or commercial name has a right to legal protection. Article 10. That seizure shall be applicable to products bearing falsely the name of a stated locality when this shall be joined to a fictitious commercial name or a name borrowed with a fraudulent intention. Article 11. That protection shall be accorded to trade-marks and trade-names at international exhibitions. Article 13. That an International Bureau shall be established

at Berne.

Foreseeing the probable desirability of revision, it was provided in Article 14 that "The present convention shall be submitted to periodical revisions for the purpose of introducing improvements calculated to perfect the system of the union. With this object, conferences shall take place successively in one of the contracting States between the delegates of said States. The next meeting shall take place in 1885 at Rome."

The conference at Rome was duly held, the United States being represented by Mr. Stallo, United States Minister to Italy.

The principal amendment proposed was an addition to Article 10, that every product bearing a false indication of origin should be seized on importation into any one of the contracting States; and that the seizure might also take place before shipment or after importation. Also for temporary protection of inventions, designs and models appearing at international exhibitions.

These propositions were not ratified by all of the contracting States, and therefore failed.

The United States adhered to the convention in 1887, and under an act of Congress (26 Statutes at Large, p. 17) sent three delegates, Hon. Thomas W. Palmer, Minister to Spain, and F. A. Seely and Francis Forbes, to the succeeding conference at Madrid in 1890.

The conference at Madrid, because of the failure of the propositions of the conference at Rome to receive universal assent and to be incorporated into the convention, adopted the expedient of subsidiary conventions and unions, which have gone into effect between the several powers which have agreed to them only.

There are two of these subsidiary conventions, both signed at Madrid, April 14, 1891—viz., one for the suppression of false indication of origin—i. e., the seizure of all goods bearing any mark indicating a place of manufacture or production other than the true place. Such goods are to be seized in the country of production, on importation into another State, or in the latter State, or in case the laws of any State do not permit of seizure, such other remedies are to be taken for repression as are allowed by the laws of that country. (The latter clause was added at the suggestion of the delegates from the United States).

Article 3 permits the vendor of goods coming from another country to indicate his name and address, but in that case the address or the name must be accompanied by a clear indication in legible characters of the country or place of manufacture or production. The following nations have adhered to this subsidiary convention: Brazil, France, Great Britain, Portugal, Spain, Switzerland and Tunis.

The other subsidiary convention provides for the international registration of trade-marks, to which Brazil, Belgium, France, Italy, the Netherlands, Portugal, Spain, Switzerland and Tunis have adhered. Also Austria-Hungary with a proviso of legislative ratification.

International registration under this agreement is a purely diplomatic affair. The citizen of a government adhering to the union applies to his government to register his mark for him at the International Bureau at Berne, and the bureau in turn forwards such mark for registration to the other States of the union. The fees are only those of the various governments, and in addition an almost nominal fee for the International Bureau. The registration being thus made is freed from many of the risks attendant upon the work of making separate registrations in the separate countries.

The convention of Paris of March 20, 1883, for the Protection of Industrial Property is of the greatest importance to trade-mark owners in the United States since it makes provision for the time in the growth of their several businesses when it will overflow national bounds and become international.

Without any international agreement and with each government acting according to supposed local interest, the same trade-mark might be used in many different countries, with the result of limiting the trade of each user of the mark to certain geographical bounds.

The United States has made special treaties in regard to trade-marks with the following nations: Austria, concluded 1871; Belgium, 1884; Brazil, 1878; Denmark, 1892; France, 1869; Germany, 1871; Great Britain, 1877; Italy, 1882; Russia, 1874; Serbia, 1881, and Spain, 1882.

Propositions of the United States.

The propositions that will be presented to the Brussels Conference now in session by this government may be briefly stated and the reasons set forth will emphasize their importance. Assistant Commissioner Greeley of the U. S. patent office has given the subject much thought and outlines the more important propositions that this government will submit.

Article 2 of the Convention, as it now stands, gives the right to the subjects or citizens of each of the contracting States to

secure the same protection, so far as concerns patents for inventions, trade or commercial marks, and commercial names, in all the other States of the union that the respective laws thereof now or may hereafter accord the subjects or citizens, not only as regards the extent or duration of protection, but also as regards the fees for the issuance of the patent and for continuing the protection given by the patent in force during the period named therein, and also as regards the inventions which may be protected by patent.

In the United States the fees for the grant of a patent for an invention are but thirty-five dollars, of which fifteen dollars is required upon filing the application, and twenty dollars prior to the issuance of the patent. The patent is granted for seventeen years, except in certain cases, and it continues in force for the full term for which it was granted without the payment of further fees.

In certain States of the union, not only are fees required upon deposit of the application and issuance of the patent, but further fees in the form of annual taxes are required for the continuance of the protection given by the patent as issued, the patent lapsing if these annual taxes are not paid. The aggregate amount of these fees in some of the States of the Union is many times the fees required by the United States. For instance, in Great Britain, as stated in the "Tableau Comparatif," published in a recent number of "La Propriété Industrielle," the fee payable on filing the complete specification is four pounds sterling (say twenty dollars). This pays for the continuance in force of the patent for four years. For the fifth year a tax of five pounds (say twenty-five dollars) is required; for the sixth year a tax of six pounds (say thirty dollars) and so on, increasing one pound each year. The aggregate amount of fees for a patent of fourteen years is thus ninety-nine pounds, or nearly five hundred dollars.

In France, annual taxes of one hundred francs (say twenty dollars) are required, aggregating for a fifteen year patent fifteen hundred francs (say three hundred dollars).

In Austria, under the law of January 11, 1897, the fee payable on the filing of the application is ten florins, (say four dollars,) and the annual taxes for a fifteen year patent aggregate over nineteen hundred florins (say eight hundred dollars).

It does not seem just that a subject or citizen of a foreign State should secure from the United States protection for his invention, trade or commercial mark for a less sum than is required of citizens of the United States for like protection by the State of which he is a subject or citizen, and it is believed that the Convention should not restrict the United States from requiring, if it shall seem best to do so, that subjects or citizens of other States should pay for the grant and continuance of protection the same fees which are required for like protection by other States from citizens of the United States.

Further, it does not seem just that a greater protection to inventions than that which is extended by the State of which the inventor is a subject or citizen, or in which he is domiciled at the time of making his invention, should be extended by the United States. That, for instance, a subject or citizen of Austria (not yet, it is true, one of the contracting States) should be entitled to protection in the United States for the product of a chemical process, while in his own State he is entitled only to protection for a particular process for its manufacture and is not entitled to protection for the product, does not seem just, particularly as a citizen of the United States who has invented a product of a chemical process, for which he is entitled to protection in the United States, is entitled to such protection in Austria as is now afforded the Austrian inventor in the United States.

So, too, with reference to Switzerland. The Swiss patent laws do not recognize as entitled to protection either a chemical process or the product of such process, unless it is susceptible of being represented by model, while the citizen of Switzerland is entitled to protection in the United States for chemical processes and products of chemical processes, as well as many other inventions which cannot be represented by models.

Any State of the union should be entitled to refuse, at its option, to subjects or citizens of another State the protection which is refused by that other State to its subjects or citizens.

For these reasons the United States Government proposes to amend Article 2 by adding the following paragraphs:

Provided, That a subject or citizen of any one of the contracting States applying for a patent for invention, trade or commercial mark, or commercial name, in another of the contracting States may, at the option of the latter State, be required to pay for the issuance and continuance in force of the patent applied for, fees required of a subject or citizen of the State in which the patent is applied for, for the issuance and continuance in force of a patent for invention, trade or commercial mark or commercial name, in the state of which the applicant is a subject or citizen.

Provided, Further, that an invention not the subject of a patent in the country of origin may, at the option of another State of the union, be refused protection in that State. Country of origin shall be considered the country of which the inventor is subject or citizen, or in which he is domiciled at the time of the first deposit of an application for an invention.

Article 4 of the Convention is not suited to the wants of American inventors.

The amendment of section 4887 of the Revised Statutes of the United States, approved March 3, 1897, which will take effect January 1, 1898, will eliminate from our law the feature of the dependence of the United States patent on prior patents for the same invention previously taken out in foreign countries. This amendment, while removing one reason for the proposition of the United States at Madrid that the period of delay should begin at the date of the issue of the United States patent, namely, that the grant of a prior foreign patent would limit the latter to the term of the former, does not obviate another difficulty which springs from our system of preliminary examination.

In our system, the papers deposited with the application for a patent and forming part thereof. 1. An application therefor in writing to the Commissioner of Patents; 2. "A written description of the invention or discovery and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound and use the same; and in case of a machine, "an explanation of "the principle thereof, and the best mode in which he (the inventor) has contemplated applying that principle, so as to distinguish it from other inventions; and in which he (the inventor) shall particularly point out and distinctly claim, the part, improvement, or combination which he claims as his invention or discovery." Revised Statutes, section 4888. Drawings "when the nature of the case admits of drawings." Revised Statutes, section 4889.

Specifications and drawings are submitted to the examination of skilled persons in the patent office, called examiners, who often find that the inventor has improperly described or misrepresented his invention and has claimed more than he had a right to claim as new. If it is found that the invention has been known or used by others in the United States, or has been patented or described in any printed publication in any country before his invention, the application is refused and no patent thereon issued. If, however, the claims of the application are merely broader than the invention and include therein matter which is shown by the prior state of the art to be old, then the applicant may amend his specification and claims so as to limit them to his actual invention, and this being done the patent is issued upon the amended specification and claims. Such amendments are always restrictive in their nature and the applicant is never permitted to

broaden his claim to cover an invention not within the description contained in the application as filed. It is found from the records of the patent office that of the applications for patent filed since the year 1880, nearly one-third were rejected for want of patentable novelty. The remaining two-thirds were found patentable, and in all but those in which the final fee was not paid within the time required by law, patents were issued.

By amendment of the specification and claims forming part of the application, the inventor is enabled to separate the new from the old, and to claim what he has in fact invented. It is this amended application which should be the subject of re-filing in the different States of the union under Article 4. But as in certain cases the examination may not be completed for a considerable period of time, and the inventor may be desirous of immediately exploiting his invention in other countries of the union or of avoiding the risk of intermediate publication or other acts which would vitiate his patent, he should be allowed to deposit his application in the several States of the union, with a description of his invention as filed in the country employing the preliminary examination, and afterward to amend the same so as to make it conform to the patent issued on the first application.

In the case of an application filed in another country, and afterward in a country employing the preliminary examination under claim of priority, then the specification and claims there allowed should be taken as equivalent to the prior application for the purposes of Article 4.

The United States government, therefore, proposes to amend Article 4 by adding thereto the following paragraph:

"The application for a patent of invention, of an industrial model or design, or trade-mark, above mentioned, may be amended in the part describing or claiming the invention, model, or design, in conformity with the description and claim allowed and forming part of the patent issued in countries requiring a preliminary examination; but the description and claim shall not be construed to extend, in any State of the union, greater protection to the invention than in the country of origin."

It is proposed to so amend article 5 that it shall not be necessary for the American inventor to work his invention in a foreign country in which he may secure patents. "Working" means manufacturing, and is required under penalty of forfeiture of the patent in most European countries, and is a most onerous requirement.

Another important proposed amendment relates to the interdependence of patents for the same invention in different countries. As the laws now stand, a patent granted for a short term in one country determines the term of the patent granted in another. For instance, in the United States patents are ordinarily granted for seventeen years. But, if the applicant has taken out a foreign patent, having but ten years or fourteen years to run, his United States patent is limited to expire with the foreign patent having the shortest term.

It is now proposed to do away with this interdependence of patents, and to have each patent which is applied for under the convention issued for its full term, without regard to patents in other countries.

Trade-marks.

Not the least interesting and important feature of the conference will be the discussion of the articles of the convention which relate to trade-marks and the commercial name. The importance of trade-marks would seem to be more fully recognized abroad than here. In many countries the counterfeiting of a registered trade-mark subjects the offender not only to forfeiture of the goods, but to fine and imprisonment. It is generally considered of even more importance than patents for inventions. Trade-marks are of vital importance to commercial interests. They furnish to the manufacturer and the merchant the only means by which he can protect the trade which he has built up by long years of study and care. They are of especial importance in foreign commerce. Where goods made in an English-speaking country pass beyond the confines of that country something more than English words are necessary to mark the goods and distinguish them from similar goods. This mark, in its simplest form—it may be a 'star' or a 'crescent'—crossed swords, or the like—is recognized by all peoples whatever their language. The merchant who has established a reputation for goods marked with a crescent should be protected from those who seek to steal his trade by marking their goods, perhaps inferior, with the same crescent.

There is, in respect to the registration of trade-marks, almost as wide a difference between the different countries as in the matter of patents. In the United States the registrant must be the owner of the mark and must have actually used it on his goods in commerce with foreign nations or the Indian tribes. No one but the owner of such a mark can register it. In some foreign countries the first applicant, whether in fact the owner or in fact a user, of the mark or not, may register it, and by the fact of registration becomes the owner of the mark, notwithstanding prior use of the mark by others. So it happens that United States trade-marks which have been long used and have become of great value, and the value of a trade-mark may be many thousands of dollars, have been registered in foreign countries by persons who were not connected with the United States owners, and goods bearing the trade-mark manufactured in this country are liable to seizure if imported into the country in which that mark was so registered, and if sold to or by the purchased consent of the registrant. This stealing of trade-marks is by no means uncommon, and, it is said, that the bicycle manufac-

turers of this country have suffered materially in their export trade by reason of it.

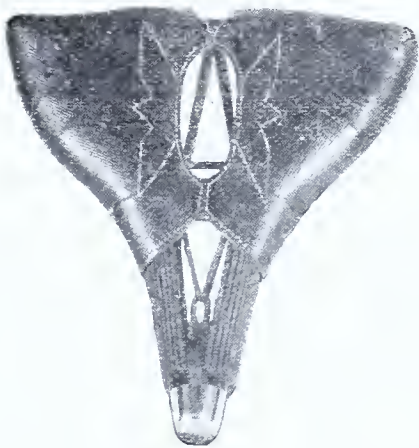
There will doubtless be many other important amendments proposed of which no previous notice has been given, in regard to which this government will depend upon the judgment of the representatives at the Brussels conference.

It was of the greatest importance, therefore, that the most competent persons should be selected as the government's advisors and agents. Mr. Alexander Capehart, who is associated with Mr. Forbes, is one of the proprietors of the INVENTIVE AGE of Washington, D. C. He has been in Europe during the last three years, taking observations of the practical working and effect of the various patent laws in foreign countries, and understands thoroughly what changes should be made by international arrangement to benefit and better protect the American inventor.

The Hammock Bicycle Saddle.

In a recent sermon Rev. Talmage delivered a great eulogy on the wheel—taking as his text, Ezekiel, x: 13: "As for the wheels, it was cried unto them in my hearing, O wheel." The inventor of the cotton gin, the printing press and other machinery was reviewed and then the modern "bike" came in for the following:

"While the world has been rolling on the eight wheels of the rail car, or the four wheels of the carriage, or the two wheels of the gig, it was not until 1876, at the Centennial Exposition at Philadelphia, that the miracle of the nineteenth century rolled in the bicycle. The world could not believe its own eyes, and not until quite far on in the eighties were the continents enchanted with the whirling, flashing, dominating spectacle of a machine that was to do so much for the pleasure, the business, the health, and the profit of nations. The world had needed it for 6,000 years. Man's slowness of loco-



THE HAMMOCK BICYCLE SADDLE.

motion was a mystery. Was it of more importance that the reindeer or the eagle rapidly exchanged jungles or craigs than that man should get swiftly from place to place? Was the business of the bird or the roebuck more urgent than that of the incarnated immortal? No! At last we have the obliteration of distances by pneumatic tire. At last we have wings.

"And what has this invention done for woman? The cynics and constitutional growlers would deny her this emancipation, and say: 'What better exercise can she have than a broom, or a duster, or a churn, or rocking a cradle, or running up and down stairs, or a walk to church with a prayer book under her arm?' All sensible people who know the tonic of fresh air, and the health in deep respiration, and the awakening of disused muscle, and the exhilaration of velocity, will rejoice that wife, and mother, and daughter may have this new recreation. Indeed, life to so many is a hard grind that I am glad at the arrival of any new mode of healthful recreation. Mr. Friend Will Carleton, the poet, said what I like when he wrote—

We claim a great utility that daily must increase;
We claim from inactivity a sensible release;
A constant mental, physical, and moral help we feel,
That bids us turn enthusiasts, and cry, God bless the wheel!"

"Never yet having mounted one of those rolling wonders, I stand by the wayside, far enough off to avoid being run over, and in amazement and congratulation cry out in Ezekiel's phraseology of the text, 'O wheel!'"

So much for the wheel in general, but what about the saddle? Why is it that so many riders especially ladies, have been advised by their physicians not to become habitual riders? It was not because of the exercise—not because of the pneumatic tires—not because of the ball bearings—not because of the chain and sprocket. It was because of the saddle. Perfect the saddle—accommodate it to the motion of the limbs in pedaling, conform it to the shape of the body and prevent pressure on

the sensitive parts, and the wheel critics among the medical fraternity will be answered.

Such a saddle has just been put upon the market. It is known as the Hammock saddle and is manufactured by the H. C. Phillips Mfg. Co., Butler, Pa. The name is suggestive. It fits to the body like a hammock. It rocks and follows the natural action of the limbs. It prevents chaffing, soreness and stiffness. Riders will appreciate the increased leverage it allows on the pedals without increased labor.

Prof M. F. Thompson, M. D., D. D. S., Lecturer on Anatomy, National University, Washington, D. C., stated in one of his lectures in October 1897: "The continued use of a flat stationary bicycle saddle will cause a deformity of the coccyx bone (terminal of the vertebral column), by bending it forward, and in case of a woman who has continuously used such saddle and afterwards reaches a pregnant state it will necessitate the bone being bent back to its normal position or broken in order to accomplish successful delivery. There has been a saddle invented (the Hammock) which gives obliquely to either side as pressure is applied on the pedal by the corresponding limb, and this appears to me to be the only preventative for this serious malformation."

The construction of this saddle is extremely simple. It is made of finest linen cord (especially manufactured and not subject to moisture). The rods form a socket joint in cantle giving motion described. Invisible springs keep seat in position and a sliding loop changes its shape to liking of rider. No tools required; no adjusting bolt; no riveting or hardened surface. Its weight is only 12 to 16 ounces and it sells in the market for the same price of other so-called high grade saddles. It is made in various styles, each grade having large, medium, small and ladies design.

The inventor and manufacturer of this saddle is Mr. H. O. Phillips, son of ex-congressman Phillips of Pennsylvania.

Swindlers Brought to Justice.

In another column the details of another gigantic swindle on inventors are set forth. Another gang of frauds have been apprehended and a half dozen or more patent sharks now await the action of the federal court. The post office department is now thoroughly aroused on this subject and special instructions to inspectors are bearing fruit. These swindlers are almost powerless without the use of the mails and it is indeed encouraging to the great army of inventors that the government proposes to dissolve partnership with these humbugs. It is astonishing what rank "suckers" a large number of inventors are, due, no doubt, to discouragement in the results of their inventive genius. Many inventors build upon false hopes. They attach too much importance to their discoveries. They fail to appreciate the fact that only a small percentage of patented inventions are commercial successes. The average inventor, as soon as he gets a patent, by some arbitrary rule fixes a fictitious value on his invention. Perhaps unconsciously his judgment has been warped by the extravagant array of literature he receives from the very class in whose toils he falls later on. He is told that his invention—properly handled—is worth thousands, when perhaps the most that shrewd business acumen could figure out would not exceed the three figure column. It is too often the case that the more dependent the inventor is on capital to promote his invention the more unreasonable his greed and the more exalted are his ideas of value. In this condition he is ripe for the patent shark, and the greater the shark—the greater the misrepresentations, the more brilliant the rainbow held out, the more eager the inventor in the chase. It would seem that some inventors ought to profit by their own experience if not by the experience of others, but instances are not rare where the inventor slides from the clutches of one fakir into the hands of another—from a Washington humbug to a Detroit sharper—from a New York confidence man to a Philadelphia swindler—from a Cincinnati crook to an Indianapolis, Des Moines, Munice, Buffalo or other "inventor's friend"—with a promptness that is simply astounding.

How Hens are Fooled in China.

In China the hen is kept constantly busy. When not engaged in hatching her own brood she is compelled to hatch fish eggs. The spawn of fish are placed in an eggshell, which is hermetically sealed and placed under the unsuspecting hen. After some days the eggshell is removed and carefully broken, and the spawn, which has been warmed into life, is emptied into a shallow pool, well warmed by the sun. Here the minnows that soon develop are nursed until strong enough to be turned into a lake or stream.—*Popular Science News.*

SUCCESS WITH PATENTS.

How to Make them Pay.

(From Booklet Copyrighted by Joseph W. Buell.)

Problem: To obtain an expression, for the commercial value,
let— a = legal security of profit
 b = economy effected
 c = extent of demand
 d = deductions
 $a(bxc) - d$ = Commercial value

INTRODUCTORY.

Patent law in this country has raised a great number of persons to wealth: it has stimulated a large number of inventions that have proven to be profitable to their authors, but it has also induced many to waste time and money in unproductive and hopeless enterprises.

The aim of the author is to direct attention to some of the factors, conditions and tendencies that favor or weigh against the commercial success of inventions.

With this end in view the writer has attempted to take the inventor by the arm and lead him to different points of view, where, if he is not unduly biased by his own interests, he can trace out a reliable course to pursue, in roughly gauging the commercial value of his invention, and which determination will tend to assist him in deciding what steps to take to market his invention properly.

Shrewd business men cannot be induced to engage in a commercial enterprise based on an invention unless they can be reasonably assured of its legal protection by a patent.

LEGAL SECURITY OF PROFIT A FACTOR OF VALUE.

The first principle of value in a patented invention is stability of possession, or the exclusive right conferred by statute to make, use and sell a patented invention; and if this right is not subordinate to or in conflict with any existing patent right it may be considered of maximum legal value.

An inventor undoubtedly understands and appreciates the physical thing which he has created or discovered and can judge of its advantages, whether it be an art, a manufacture, or a composition of matter; but without the needful experience, he rarely knows what particular matter or matters, part, improvement, or combination, in any one of those subjects produced by him does his legal invention or discovery reside. He can hardly be expected to know this, because such knowledge would involve a knowledge of the entire history of inventions of the same class, as well as requiring of him the ability to apprehend the legal significance of the language by which his invention is described and claimed in his patent.

His patented invention may be surrounded by hundreds of improvements on different types of fundamental inventions, of which his own is only a species of one type: there may be improvements upon improvements; and many alleged improvements may be successive simpler forms or may not be practical improvements at all, but on the contrary they may be fallacies based on wrong observation and incorrect experiment; but nevertheless, they are patented and have a *prima facie* title until they have been invalidated by some federal court, and may stand as a legal impediment in the inventor's pathway to prevent his full enjoyment of the exclusive rights under the later and more meritorious patented invention.

The legal aspect surrounding a patented invention should first be thoroughly looked into in forming an estimate of the commercial value of an invention to ascertain in what manner it is open to use, as an insufficient legal status may be a cause for deduction in the estimate of the commercial value of a patented invention because its employment may entail infringement of previously existing patent rights.

The Property Rights in Foundation and Improvement Patents Compared.

For illustration Brown invents a typewriter machine. It is perfectly new and valuable so far as it goes and would command a premium on the market because of its utility and efficiency over all other kinds on the market, but it is an improvement on Smith's old typewriter machine, which latter contains several features of merit, which are broadly covered by the claims of Smith's patent. Brown cannot make his machine without using the old parts or elements of Smith's machine and consequently Brown infringes the former's patent if he practices his own invention. Yet the patent office will grant Brown a patent for all that he has discovered as new and useful without saying a word about Smith's patent, because in the eye of the law Brown is presumed to know all the other patents which have been granted relating to

that art. In such cases it would ordinarily be necessary for Brown to pay tribute to Smith, if he desires to practice the broad invention with his improvements because he has not changed the general principles of the typewriter as first disclosed by the original thought of Smith, who first supplied the solid want in that line; and the law insists that Smith's prior right should not pass into Brown's possession even though the latter's ingenuity has developed or expanded the usefulness of the same. Therefore the royalty which Brown would have to pay Smith should be ascertained and deducted in estimating the commercial value of the Brown patent. It may be that Brown has so greatly improved the former invention and it so fully meets the demands of trade that its availability will be recognized as such a positive advantage that the owner of the broad patent will be only too glad to acquire a right or interest or make an equitable arrangement of co-operation in regard to the use of the improvement,—in which case no pecuniary injury can be calculated as resulting from the existence of the prior patent. It is rare, however, that the owner of the broad patent will make any concessions of this nature, notwithstanding the fact that as a rule the final type as exemplified by improvements are simpler in construction than the generic invention; as every pioneer invention is more or less complex and intricate in construction and of low efficiency; as the owner of the broad invention is generally able to hold his own on the line of improvements, by his subsequent discoveries, assisted by the failures and improvements of others; and a broad foundation patent is usually a dominating factor in any successful line of commercial endeavor based on patented inventions.

VALUE ASCERTAINED BY TEST OR REDUCTION TO PRACTICE.

While an inventor should have abundant faith in his ideas still he must get rid of those natural prepossessions, however inviting the mental invention, which lead him to assume as a matter of course that his invention is bound to work successfully. This spirit often leads him to apply for and obtain patents for inventions before testing them, which latter course would in many cases have been sufficient to convince him of the impracticability of the devices.

Ordinarily the expense necessary to demonstrate the practicability of an invention is not heavy or beyond the means of the inventor, and he should set about at once to clothe his conception in a practically operative means, as it is not only important as a step towards the development of his invention preparatory to its introduction on the market but it fulfills a most important legal requirement, that demands the reduction to practice of an invention as the final step in the legal completion of an invention.

That American mechanics and business men are pre-eminently practical is acknowledged and to win acceptance in any branch of the trade the invention must have more than a suggestive value. Its inherent value or worth must be demonstrated by actual test which in practice it would be subjected to, *i. e.* under the same actual conditions of use; and the law does not regard that the inventor has properly endeavored to reduce his invention to practice until he has made a working device and put it in operation in such a way as to indicate the actual difficulties to be overcome in practice. The merits of some inventions are proven easier than others, and in some cases the inventions will have to be subjected to the test of time.

In railroad inventions few people can gain the permission or obtain the capital necessary to make the trial. In such instances it is wise for the inventor to make concessions retaining a smaller interest if need be for the privileges conferred and the assistance of expert aid which is ordinarily furnished. Otherwise if he declines to be liberal the chances are that his invention will remain undemonstrated and unknown.

There are usually THREE DISTINCT STAGES OF DEVELOPMENT in the production of an invention and its development as a marketable one:

- 1st. To make the device or article.
- 2d. To make it well, and
- 3rd. To make it cheaply.

Appraisement Based on Commercial Comparisons.

That which impels men to go into an enterprise is the idea that it is supposed to yield a goodly profit. Therefore the first matter of importance to determine in regard to a patented invention after its practical demonstration is in regard to its prospective commercial value.

It is impossible to calculate beforehand an absolute commercial value for any invention, before its introduction on the market, even though its advantages may be stated with exactness sufficient for purposes of calculation, as the number of instances of its employment, its rate of output and the duration of its use and cost of introduction can only be

matters of conjecture more or less accurate according to the practical experience and commercial acumen or foresight of the calculator.

However, the perplexing and complicated task of appraising an invention, to form a rough estimate of its commercial value before its invasion of the market, often confronts an inventor, and it may be well to call attention, suggestively, to some of the factors, conditions and tendencies that are of such a decided nature as to have a controlling influence on the destiny of the invention, should it be placed on the market.

The success of inventions cannot be viewed alike as every business is governed by its own laws of trade; but there is an overwhelming bias in favor of inventions introducing progressive ideas along the STANDARD LINES of each industry, which custom has laid down.

COMMERCIAL COMPARISONS.

1st. As to the economy effected reckoned in dollars and cents over rival methods or means.

2d. The probable extent of use or application of the invention.

1. ECONOMY EFFECTED.

The first factor is oftentimes capable of exact calculation and expression in terms of value, as for instance whether a machine or process may decrease the initial cost of construction or installation, decrease the working expenses, or improve the number or quantity or quality of vendible or usable product, in any or all of these. The economy effected may relate to deriving power at a minimum cost or saving its expenditure in a given machine or process.

Power costs money whether the prime mover be a laborer at a dollar a day or a steam engine; and any tool or machine that requires a less expenditure of power or dispenses with the labor of an attendant works a financial benefit to the industry and is capable of computation.

It is true that when the invention relates to the vendible product itself, or where it is for personal or domestic use, or for affording pleasure or instruction, or for any other purpose than commercial use for want of any commercial basis of comparison,—in such cases its estimated selling value, less the cost of its production must be taken as the value of the invention as an article of trade in an individual case.

Care in Estimating and Providing for Profit.

The cost of material and the process or steps in manufacture will have to be carefully weighed and considered to produce a superior article at the lowest possible cost, so that it can be sold at a figure to the consumer in order to successfully compete with goods already on the market.

It is sometimes extremely difficult in some lines of manufacture to calculate the exact cost of any article of manufacture because of the fluctuation of some of the factors which go to make up that cost and the painstaking calculator may find himself hindered in a single-handed attempt to ascertain the exact cost. Manufacturers themselves sometimes find it difficult to arrive at exact cost. Establishments making a multitude of things out of the same materials and carrying the process along on the same general basis cannot well be utilized in ascertaining clearly and definitely the elements of cost producing any one of the articles manufactured. It is much harder to estimate the cost of manufacture of a composite article, as a steam engine, than one made from a single material even though in the latter case the product has to be put through a great number of handlings or treatments to reach the merchantable state, as exemplified in the manufacture of the sewing needle, which passes through eighty operations before it is perfectly made.

In most branches of industry, where materials are put through several processes or steps and are gradually worked toward the merchantable state, there are opportunities to rectify mistakes, either in materials or in the working of them, so that losses may be avoided or greatly lessened but there are instances where the materials are once handled, the thing is done. This is especially the case in the production of window glass, which is in fact so simple as to the process of manufacture, as well as the ingredients used, that it is hard for the enquirer to believe that it is impossible to reduce the whole matter to a mathematical certainty as to results. That is to say, it is hard for anyone to understand that if an experienced manufacturer has a properly constructed works, secures the proper materials and fuel that the item of profit cannot beforehand be easily and accurately arrived at, but its very simplicity is one source of many of the complications that arise to make the business more or less precarious as to results both for the men employed and the manufacturer. When the materials are once put into the furnace the thing is done and

if not properly done there is a complete loss.

It is well then for the inventor to make careful investigation as to cost in the branch of industry to which his invention appertains.

One great obstacle, however, to such an investigation lies in the attitude of manufacturers, who sometimes fear that giving of the information required relative to the cost of producing their goods may result in some harm to their business. It is in view of this attitude a delicate matter to ask a manufacturer for all the facts and figures relating to the cost of producing his goods.

Prime Cost.

The prime cost, however, can be more generally obtained from a manufacturer as it is easily arrived at without probing too deeply into the affairs of the business in question,—which prime cost means the cost of the stock and labor and all cash expenditures chargeable solely to the account of the job or piece under computation.

Prime Cost Lessened.

If a price is asked on small orders for making the complete article or device there is oftentimes a temptation on the part of the contractor bidding on the work to ascertain the selling price and gauge his price accordingly. If, however, the inventor obtains the elements or parts of his article or device from different large manufacturing concerns who are specially equipped to turn out such work and then hires his labor to assemble his parts, then the prime cost of the article can be greatly lessened.

Actual Cost.

If the invention has possibilities of large consumption and the inventor intends to go into business competition with rival devices he should be more strongly guided by the dictates of prudence in his calculations and get at the real cost based on the establishment of his own manufacturing plant so as to avoid the payment of tribute to the manufacturer or mill owner, which manufacturer's profit must necessarily be deducted from the profit accruing to the inventor, or be added to the selling price.

In such a case the inventor should gain some idea of the total cost, which means the entire cost of the job or piece under consideration, with a certain addition for the proportion of the general expense account. The expense account is inevitable since the manufacturing equipment and current expenses must exist, and unless the inventor intends to pay a manufacturer's profit, he must calculate the cost of production from this standpoint. The expense account is not covered by the running expenses of the factory alone, but is determined by the general policy of the enterprise. This policy may involve large advertising to make the excellence of his product or device known or other means for forcing customers, upon the introduction of the invention on the market, such as the placing of the article or appliance on trial or selling on the installment or on some other credit plan.

It is the thousands of users, all directly or indirectly forced customers of the patentee, which gives value to inventions, and we can always afford to figure on a profit in relation to the bulk of business to be expected. If the business is to be done in a small way the individual profit must necessarily be large or greater than when the product is to be made in large works and distributed throughout the length and breadth of the land in enormous quantities. In the latter case inventors can afford to sell for a less profit and in that way decrease competition, while in the aggregate obtain a large income.

2. EXTENT OF DEMAND.

An invention to be a commercial success must not only attain the physical object or end sought, but it must be capable either of exciting a new want or desire, or must satisfy an old want or desire in a more efficient and economical manner; and the inventor must satisfy his judgment or that of the investor, by scrutinizing the elements of demand when taken in connection with the prices that rule on the market in order to give assurance that his invention occupies a peculiar advantage or one that will warrant the undertaking of marketing his invention, a sound one.

The Probable Demand.

It will be apparent that the commercial value based on the probable demand for novelties or inventions intended simply to excite a new desire, or want cannot be even roughly gauged because the calculation of the commercial value of any article or device can only be wisely attempted beforehand by having some commercial basis of comparison to be guided by. It sometimes happens, however, especially in the line of amusements, that a novelty such as "Pigs in Clover" has created a new desire or stimulated an old one to a degree that has re-

sulted in a phenomenal sale and consequent fortune to the inventor or promotor. But it would have been a useless conjecture to have tried to predict as to its prospective commercial value, as the probabilities in regard to its fascinating qualities had to be left to the taste or fashion of the public.

Then again inventions that would perhaps answer to serve a given want satisfactorily might in practice prove to be at first of little commercial value owing to the fact that the conditions of the art or industry to which it relates precludes its introduction on the market on account of the lack of materials or methods, but which deterring factors may, however, be developed sufficiently, before the term of the patent has expired, to warrant the introduction of the invention on the market later on.

In nine cases out of ten an invention to be an immediate commercial success must be born of necessity.

If the inventor is not in a position to judge as to the probable demand for progressive ideas in a certain industry, it would be wise for him to consult men practically acquainted with the needs of that industry and obtain from them ideas as to the prevailing economic conceptions and impulses that dominate the minds of the managers in the department of industry to which the proposed invention belongs.

If there is a general consensus of expert opinion that the difficulty to be overcome or the economy to be effected as proposed by the inventor is a solid want of that trade and can easily be made available then his presentation or demonstration of the problem solved will be met with consideration and interest by those interested in that line of industry.

It may be recognized in a given industry that a more solid want exists in one branch thereof than in another. This is exemplified for instance in the printing industry, where it has been recognized that although the cost of printing presses is a serious expense, if they can be fairly employed there need be no loss; and while it is not yet time to say that we have had enough in the direction of their further improvement, as they are short of perfection, still the presses offered on the market today are substantially adequate for all the pressing necessities of business under the present methods; and any questions of improvements relating thereto only affect the minor ones of convenience and comparative cost; while in the composing room the losses have been considered such a heavy drain on the profits of printing establishments until it has been considered the profit eating end of that industry. Hence any invention that will relieve that drain will command more of a premium than one affecting the improvement of the presses.

This has recently been exemplified in the instance of that important invention, the machine for distributing, setting and justifying type, which has recently been introduced on the market, and which was followed immediately by its adoption in many of the large printing establishments; and the value of which has proven to be enormous to those holding the controlling patents; the patent rights therefor being sold in Great Britain alone for one million dollars in cash.

Having viewed dispassionately the general conditions and tendencies productive of demand in the industry to which the invention belongs it would be well, if the conditions are favorable to its pre-eminence, to make inquiries as to the probable scope of demand likely to be affected by the proposed invention.

His first consideration then will be whether the invention will satisfy a want the nature of which is general or will it only affect a single industry or department thereof, or will it be restricted to petty trade.

The demand for an invention may not be felt in all parts of the country in an equal degree even though it may be classified as an invention intended to satisfy a general want of a certain nature; the invention may only be commercially available in certain parts of the country where the present means for supplying that want are deficient. For instance in those parts of the country where coal is high-priced because of the cost of transportation from a great distance, there might be a great demand for a cheaper substitute for domestic or industrial purposes, while in the coal fields or vicinity this want is not felt and any attempt to introduce an invention of that nature in that vicinity would be unprofitable.

Competition.

Having looked the field over carefully the inventor must then consider the probable effect that his invention would have on the market to be invaded. Has the proposed invention the inherent capacity to affect the entire possible market in a degree sufficient to oust competition? Or will it require a large outlay of money for the purpose of forcing customers by large advertising, in view of the competition to be met?

A Better Thing Generally Kills a Good Thing on the Market if Properly Handled.

This proposition is almost as certain as the Rule of Three, in cases where the superiority is a pronounced one; and this is especially true when the entire profits of a business or undertaking rests entirely on the sale or use of the invention.

But the degree of excellence or economy over and above competitor articles or devices is often a mooted question which can only be determined after a commercial test. The economy proposed may be a false economy. The degree of competition that will prevail after the entrance of a new invention on the market is the most problematical question that the inventor will have to consider, except in cases where the invention clearly outranks everything on the market. In this connection, however, it is well to study the merits of the proposed invention in the light of lessened cost or price, as that is the best criterion of probable extent of demand and the best argument to use in convincing the investor that it will have a large use or consumption.

As an illustration of the uncertainty of prediction as regards the competition that will outlive the introduction of a new invention on the market let us view the recent history of furnishing light. A few years ago, when the electric light began to be introduced there were many who thought and even predicted that the era of gas was over and that its manufacture would soon be a dead industry. As predicted the electric light came into general use, and the furnishing of it and the manufacture of appliances for the same are among the great industries of the nation. But, what has gas been doing in the meantime? It has gone on increasing its output and extending its usefulness, just as rapidly as the electric light, while every gas plant is worth far more than it was before the electric light was demonstrated to be a commercial success. At this time there is more money seeking investment in gas plants and gas appliances than ever before.

The Pecuniary Value Accruing to the Inventor

From a meritorious invention depends principally on the proper development of the invention on paying lines.

Methods of Promoting.

When an inventor has a valuable article or device to offer the world he should devise the best ways and means to reach the buyer or consumer.

In marketing inventions there is a certain element of financial risk; and the inventor or patentee working single-handed oftentimes finds it difficult to enlist the aid of capital. A great majority of small and useful inventions are of such a nature, and so simple in construction, that they can be manufactured at a small cost. In such cases the inventor will often find it to his advantage to avoid business complications and commence its manufacture on a small scale; and appeal directly to the masses of consumers for their judgment and patronage. The probable demand can be tested at a small expense by the introduction of the new device or article in a given locality.

If the invention proves successful on the market after such a trial and there is a probability of its quickly entering into general use; or if the invention is for an improvement upon something already in use, and is accepted as a valuable one, the inventor may feel justified in proceeding with the manufacture; or, the evidence of its taking quality demonstrated by the test in a given locality can be submitted to others who may elect to pay a license fee or royalty for its use or sale. These small beginnings often build up large industries, and the inventor thus reaps the full benefit of his work.

Inventors who have little means at their command to personally manufacture or make the trial necessary to place the invention successfully upon the market, can often enlist the interest and aid of a neighbor or local business man, who will buy a minority interest and become a partner. Or the inventor may arrange with some manufacturer to make his patented article or device upon a royalty; but, this latter arrangement is rather a difficult matter to effect, as there is a growing prejudice against paying royalties.

There are many patented inventions, coming particularly under the heads of scientific and mechanical inventions, such as electrical inventions and complicated machines or improvements upon a machine embodying the finest mechanism, which will not warrant the necessary outlay towards the manufacture or sale of the patented device on the part of the inventor and his associates unless this patented device comes in a line with their own already established manufacture. The tendency in such cases is for the parties interested to come together and form themselves into a stock company, and elect officers; such companies in fact, now own and operate some of our largest establishments based upon inventions, and the tendency is that all

industries of any consequence in time will be carried on by them.

In the first place the capital is readily and quickly secured and applied to the needs of the business. In the second place the subscribers for stock are protected from any loss that would involve their entire estate. In these companies, as is well known, the property is represented by shares, which may be, and often are owned by hundreds of individuals.

It is important to secure a corporate charter under the laws of a state which will give the company the largest freedom of action.

Prospects of Securing Capital for Introducing Patented Inventions.

It is argued that there are more failures than successes in connection with inventions. This is also true as regards any business. Over two-thirds of business enterprises fail, but how foolish it would be to become discouraged and inactive in business on this account.

The success of great improvements in the field of invention made in recent years fully exemplifies the fact that a meritorious invention has been a winning factor in the various departments of industry.

It is sometimes charged that manufacturers and investors in industrial matters are illiberal to inventors and oftentimes refuse to consider the inventions presented to them; that their hostility has become a bugbear to inventors. This perhaps is true in some quarters and the reason lies in the fact that sometimes inventors deal in vagaries or in the elements of uncertainty without careful consideration of the ground to be covered by their proposed invention. There is oftentimes too much of the superficial and too little of the real in the conceptions offered by them. Manufacturers are pronounced utilitarians making their first count on their valuation of almost every new device or article answer the question: what is it worth to us today? How much can we save by its use? Will it meet our necessities better than what we have heretofore used? It is important that these and similar questions be answered in a plain and straightforward way in regard to every new device or product whose manufacture is destined to take in any industry. When an inventor shows an invention having practical excellence coupled with simplicity and economy and there is a fair prospect of a reasonable return it will receive respectful consideration and there will be no trouble or delay in raising the money needed to make the invention a commercial success. Enterprising manufacturers are always ready and on the lookout to bring out new and improved machinery in order to keep up with or a little ahead of the march of improvement and to this end may keep in their employment designers, draughtsmen, pattern-makers and mechanical experts for the constant development and improvement of the various lines of machinery.

Books and Magazines.

The December—holiday—number of *Self Culture* comes to hand with a poster cover as attractive as the body of the magazine is interesting. No magazine published contains more useful or instructive information for all classes, than *Self Culture* "Events of the Month" and "Inquires Answered" are exceptionally good features and among the contributors of special articles are the leading men and women of the day.

What would you do if war should be declared tomorrow with a European power? How would it change your home life, the lives of your brother and other relatives? How would it effect your business connections and business? What changes would it make in financial, city, state and national affairs? It is these interesting problems which a writer in the December *Cosmopolitan* has undertaken to sketch under the heading of "A Brief History of Our Late War With Spain," at the same time vividly describing the exciting scenes which would attend the opening of hostilities. This same number of the *Cosmopolitan* has an article on "The Well-dressed Woman" by Elsie de Wolfe, a contrast of the characters of Henry George and Charles A. Dana by John Brisben Walker, in another place "The Loves of Goethe," while Wells' story, "The War of the Worlds," which has been so widely read, reaches its conclusion in an unexpected way.

Frauds on Patentees.

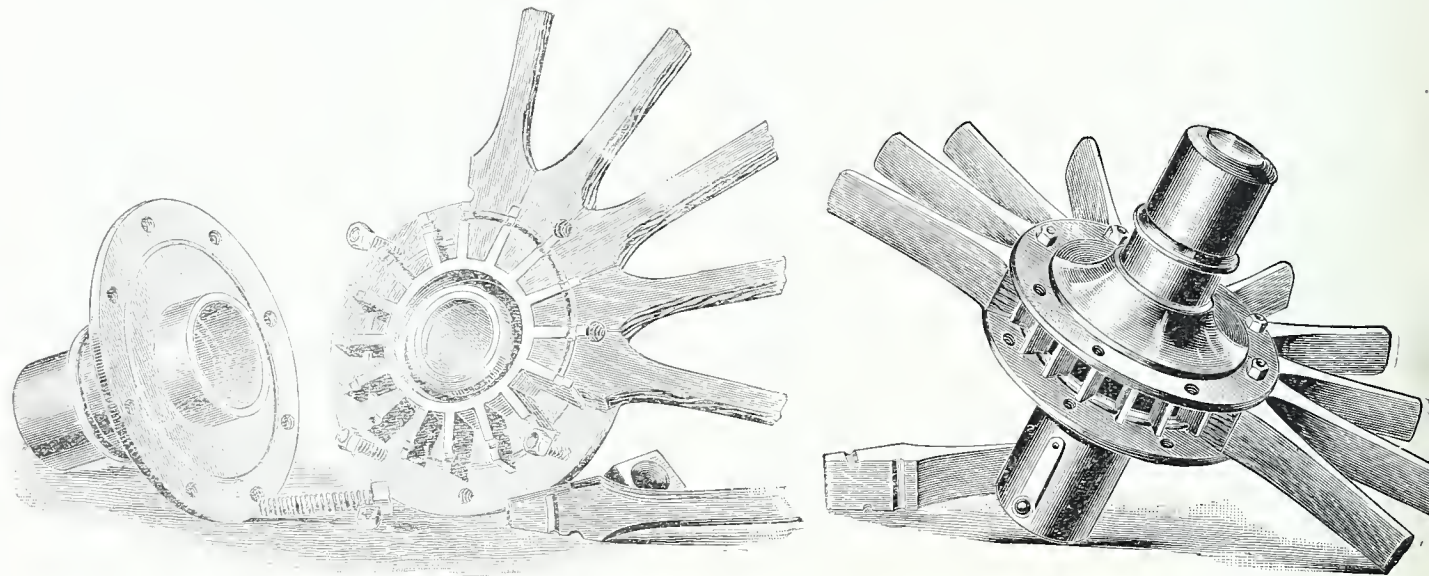
Inventors and others who have been reading the INVENTIVE AGE regularly during the last few years have been advised regarding a great variety of schemes concocted by sharpers to fleece inventors, and it hardly seems possible that any new dodge can be discovered. But clever changes in the old systems seem to have been made recently and during the last year of what may be called the Wedderburn period, the number of instances of fraud

on patentees increased to a wonderful degree. In Cincinnati and Indianapolis a gang of sharks has just been caught by the federal authorities plying that old game of negotiating the sale of patents for a handsome sum of money and a quantity of Western land, the title of which, before the deal is finally closed, the inventor is advised to look into—and having the confidence of the inventor the shark secures the job—expenses paid by the inventor of course—with same results to the inventor as come to the purchaser of "green goods."

The attention of *Scientific American* has recently been called to another dodge which for plausibility and smallness of expected results is somewhat remarkable. The usual typewritten form is avoided, but instead a letter in the handwriting of the broker is sent to the patentee, assuring him that he has parties anxiously waiting to purchase the patent at the price the patentee asks, but, like every prudent purchaser of real estate, will not pay over the money until an abstract of the title of the patent is furnished. He (the broker) must have this abstract of title before his party will be prepared to close the bargain, and the patentee is recommended to employ some confederate in the same or some other place to secure the abstract, as he (the broker) has nothing to do with the soliciting of patents.

The patentee generally has not sold any part of the patent and his title is good, but, being confused by the statement presented and attracted by the prospect of a quick sale, writes to the confederate for terms to secure the abstract of title.

The latter replies, quoting a stiff fee, and if the remittance comes from the patentee, secures the abstract and sends it to him. The patentee then forwards the abstract to the patent broker and asks for a prompt closing up of the business, but either



fails to get a reply or, if he does, one at least that is evasive. In the meantime the confederate divides the profit in the transaction, perhaps four dollars, with the patent broker who wrote the first letter. If, however, the patentee secures his own abstract of title and sends it to the patent broker, the latter replies that his prospective buyer became tired of waiting and went home, but had telegraphed him to come to his place, if all was straight, and close the sale. The broker also informs the patentee that he will be glad to visit the prospective purchaser if he (the patentee) will remit a sum (naming it) sufficient to cover his railroad fare, or instead of the money he may send a railroad ticket, which of course the patent broker could sell and secure the money therefor. Thus the patentee pays well to secure the abstract and at the same time is chagrined to find the supposed sale on which the abstract is based is bogus. Abstracts of title can be readily secured at small expense, either by the patentee himself or a reliable attorney.

Another form of fraud comes from an alleged finance company in London, who are acquainted with many large English manufacturers contemplating the purchase of factory sites in the United States in consequence of the new tariff. Numerous inquiries are made concerning rights to manufacture under American patents, and the American patentee is asked what is the lowest figure he will take for his invention.

Before the patent can be placed, a legal investigation into its scope, validity, etc., will be necessary, for which a moderate fee is called for and asked to be remitted without delay, and a commission will also be deducted, should success attend a sale. Unless the terms proposed are fully complied with, the American patentee is requested not to reply. Here, as in the other case mentioned, the prospect for effecting a sale of the patent is the chief incentive set forth for the patentee to comply, and we imagine by many the motive will be easily discerned. It is to be hoped the exposition of these fraudulent schemes will result in their limitation and prevent many would-be patentees from being defrauded.

The White Interchangeable Wheel.

A mere glance at the illustrations accompanying this article will convince one of the novelty and utility of the patented invention of Mr. Wells H. White of Aurora, Ill., in the line of a wagon hub so made that any spoke can be removed and a new one inserted, without removing the tire or rim, and in a remarkably short time. The inventor claims superiority over all other hubs and wheels in many respects. It is a much stronger hub than the old style and the only wheel that can be lubricated without removing it from the axle; and it is also claimed to be the only hub made that causes a uniform dishing of the wheel. The inventor, himself, is not wanting in a proper appreciation of his own wheel for he declares that "we do away with the perfect babel of sizes and misfits of sizes, tapers, and lengths of boxes now on the market and which makes this branch of carriage repairing so difficult." Mindful of the fact that such a wheel would meet the solid opposition of all persons at present interested in the old style of hub, he has so completely perfected it that he unarms all opposition. It is the most serviceable hub because it is made of malleable cast iron, cast steel, copper, or aluminum bronze. In this hub all dirt, dust or sand is excluded from the axle, while the oil is carried around from the oil well on each side of the hub; the whole length of the axle is kept perfectly lubricated at the same time while the wheel does not have to be removed in order to oil the axle.

The spokes always being susceptible of being tightened in a few moments, should they become loose from the use of unseasoned lumber, is another advantage of no small importance and which no

other wheel has,—and more, it is readily seen that these spokes are the strongest part of the wheel where they go into the hub, instead of being the weakest, as is the case with the other kinds of wheels. This is an exceedingly important feature, and must add great value to it, and will be quickly discovered by the consumer when placed on the market; and as there is no threading of axle, burs or nuts with both right and left hand threads for holding the wheel on the axle, this alone must reduce the cost to the manufacturer at least five per cent on the cost of axles alone.

The White interchangeable wheel promises to be the universal wheel because universal in its application. Every piece, including the spokes in each size of hub, will be so made as to be interchangeable in each of its pieces, with all sizes, and kept in stock by all carriage hardware dealers throughout the country; so that all carriage makers, all livery establishments, or even private parties, can buy and replace in their carriages or wagons any part that may be lost, worn out or broken. Consequently every civilized country will use them in preference to all others.

It is also adapted to the horseless carriage and also easily arranged for ball bearings.

The aluminum bronze fronts (front half of the hub), is only calculated for the highest grade of carriages, resembling the best of jeweler's gold, and with a burnish finish, is untarnishable, and stronger than cast steel. The patentee is prepared to furnish the finest castings from perfectly made brass patterns to all parties who wish to establish first-class plants, located in any of the great railroad divisions of the country, and as low figures as can be had, or, will dispose of the patent right in this and foreign countries outright.

Macaulay wrote that "of all inventions, the alphabet and printing press excepted, those inventions which abridge distance have done most for civilization."

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DECISIONS IN PATENT CASES.

[See Patent Office and Department Notes.]

Commissioner's Decisions.

Ex-parte Hampden Watch Company; decided October 12, 1897.

TRADE-MARK—"MENLO PARK"—REGISTRABLE.

The decision of the Examiner that the words "Menlo Park" cannot be registered as a trade-mark for time-keeping instruments, as the words have no other than a geographical meaning, and do not, therefore, constitute a lawful trade-mark under the decisions of the courts and under the practice of the Patent Office, reversed.

Ex-parte Letellier; decided October 26, 1897.

RECOMMENDATION OF EXAMINERS-IN-CHIEF—EFFECT ON PRIMARY EXAMINER.

The rules of practice of the patent office provide that the Examiners-in-Chief may annex to their decision a statement of apparent grounds for granting Letters Patent in the form claimed or any other form and may make such recommendation as they deem proper. Such statement and recommendation cannot be ignored or pleaded as of no effect. It is binding upon the Examiner and cannot be disregarded.

SAME—QUESTIONS CONSIDERED BY THE EXAMINER-IN-CHIEF.

It is to be presumed that the Examiners-in-Chief consider fully all matters bearing upon the question of patentability of claims as to which they make favorable recommendations, the question of new matter, as well as other questions. Unless a state of the art not before the Examiners-in-Chief when their recommendation is made is found to exist by the Examiner, such as precludes the allowance of claims recommended by them, the Examiner should accept the recommendation.

RIGHT OF APPLICANT TO ACCEPT DECISION.

The Examiner's action holding that an applicant cannot appeal from the decision of the Examiners-in-Chief and at the same time take advantage of so much of their decision as is favorable to him—cannot "split up their decision and accept a part of their suggestion and appeal from the rest of their decision"—overruled, as this is precisely what an applicant is entitled to do. It is the purpose of the patent law to grant to an applicant all that he is entitled to claim as new.

Decisions of U. S. Courts.

U. S. Circuit Court of Appeals—Eighth Circuit—Kansas City Hay-Press Company vs. Devolet et al.; Decided May 10, 1897.

INFRINGEMENT SUITS—MULTIFARIOUSNESS.

Where devices covered by several patents are capable of embodiment and conjoint use in a single machine, a bill which seeks to recover in a single suit for the infringement of all the patents is not multifarious.

SAME—SEVERAL PATENTS IN SUIT—TITLE TO ONE IN DISPUTE.

Where devices covering several patents are capable of embodiment and conjoint use in a single machine and it was sought to recover in a single suit for infringement, the failure of the complainant either to establish title to one of the patents or to show infringement of one or more of them does not affect his right to an injunction and an accounting in respect of others if the proof is sufficient to show that they are infringed.

INFRINGEMENT—PROOF OF ANTICIPATION—MODEL.

A model of an alleged anticipating machine made merely from recollection years after the machine that it purports to represent and which is introduced without disclosing the fact that it was not an original model until the same was developed on cross-examination cannot be accepted as sufficient evidence to invalidate a patent.

TITLE TO A PATENT—DEFECTIVE ASSIGNMENT BY A CORPORATION—EFFECT AS TO INFRINGERS.

Where an assignment of a patent by a corporation is executed by its president and secretary, who own all the stock, without any previous authorization by the board of trustees, *Held*, that it is no defense to an infringement suit brought by the assignees against a third party where the corporation itself has never questioned the validity of an assignment.

Supreme Court of the District of Columbia—United States, ex rel. Wedderburn, vs. Bliss, Secretary of the Interior; decided November 16, 1897.

AGENTS OR ATTORNEYS—CONSTRUCTION OF ACT OF JULY 4 1884.

Section 4 of the act of July 4, 1884, applies to agents or attorneys before the patent office, as well as before the other bureaus of the Interior Department.

DISBARMENTS OF AGENTS OR ATTORNEYS—NOTICE OF CHARGES AND HEARING BEFORE DISBARMENT—CONSTRUCTION OF SECTION 487, REVISED STATUTES.

The proper construction of section 487 of the Revised Statutes is that a person to be disbarred is entitled to notice of the charges against him and an opportunity in some form to be heard in relation thereto prior to any decision of the Commissioner or approval by the Secretary. Any other construction would render the section void, as being in conflict with that part of the fifth amendment to the Constitution which provides that no person shall "be deprived of life, liberty or property without due process of law," and this is the construction very properly given that section by the Commissioner of Patents and the Secretary, as shown by the practice under it.

SAME—SECTION 487 REVISED STATUTES, AND SECTION 5 OF THE ACT OF JULY 4, 1884, COMPARED.

The only difference between section 487 of the Revised Statutes and section 5 of the act of July 4, 1884, is that the act of July 4, 1884, directs that the order disbarring an agent or attorney from practicing before the patent office shall be made by the Secretary of the Interior, while section 487 provides that it shall be made by the Commissioner of Patents, with the approval of the Secretary. The only substantial difference between the two sections is that section 5 applies to all the bureaus of the Interior Department, while the section of the Revised Statutes applies only to the patent office.

SAME—"DUE PROCESS OF LAW."

Where an agent was furnished with a copy of charges made against him before the Commissioner of Patents as to why he should not be disbarred from practicing as a patent agent, and he had a hearing before the Commissioner of Patents on these charges and the Commissioner recommended that he be disbarred from further practicing as an agent or attorney, and the Secretary approved the reasons given by the Commissioner of Patents without affording the agent a hearing before him in person, *Held*, that the refusal of the Secretary to hear oral argument was not arbitrary, oppressive, or unjust and the proceeding before him was conducted under "due process of law."

TRIBUNALS EXERCISING QUASI-JUDICIAL POWERS—"DUE PROCESS OF LAW."

The proceeding before executive and ministerial officers and special tribunals exercising quasi-judicial powers in order to

constitute due process of law need not be as formal as in courts of justice or conducted after the manner of proceedings in such courts. What would be due process of law before such officers and tribunals might not be considered such in a court of justice. What is due process of law in a particular case depends largely upon the nature and object of the proceeding, the duties and the jurisdiction of the officer or tribunal, and the nature of the right or immunity to be affected by the proceeding. If the mode of procedure be such that the party to be affected has an opportunity of presenting to the officer or tribunal in any reasonable way his contention as to the facts and merits of the question to be determined, the proceeding is due process of law; but if the determination be made in an arbitrary, oppressive, or unjust manner, so that the party to be affected has no reasonable opportunity for hearing, then the proceeding and determination are void because not due process of law.

SAME—MANDAMUS FOR HEARING BEFORE THE SECRETARY—DEMURRER—PETITION DISMISSED.

Upon a demurrer to the petition for writ of mandamus to compel the Secretary to grant a hearing in person to a patent agent whom the Commissioner had recommended to the Secretary for disbarment, the reasons for which recommendation the Secretary had approved without a hearing before him in person, *Held*, that the demurrer should be sustained, the rule to show cause discharged, and the petition for writ of mandamus dismissed.

U. S. Circuit Court of Appeals—Third Circuit—National Harrow Company vs. Hench et al., decided October 29, 1897.

CONTRACT—RESTRAINT OF TRADE.

While it is true that all contracts in restraint of trade are not prohibited, and it is sometimes difficult to determine whether a particular one is, there is no room for doubt that a contract between patentees and manufacturers of patented articles to prevent competition in business and enhance prices is unlawful.

SAME—PROPERTY COVERED BY LETTERS PATENT.

The fact that property involved is covered by Letters Patent cannot be urged as a justification of a contract which enhances prices and restrains trade. Patents confer a monopoly as respects property covered by them, but they confer no right upon the owners of several distinct patents to combine for the purpose of restraining competition and trade. Patent property does not differ in this respect from any other.

SAME—PATENT PRIVILEGES—COMBINATION BY DISTINCT OWNERS OF PATENTS—MONOPOLY—RESTRAINT OF TRADE.

The fact that one patentee may possess himself of several patents and thus increase his monopoly affords no support for an argument in favor of a combination, by several distinct owners of such property to restrain manufacture, control sales, and enhance prices. Such combinations are conspiracies against the public interest and abuses of patent privileges. The object of these privileges is to promote the public benefit, as well as to reward inventors.

SAME—SAME—AVOIDING LITIGATION.

A contract based on patent rights which restrains trade is not justified by the situation of the parties. Their exposure to litigation is entitled to no greater weight. Patentees may compose their differences, as the owners of other property may, but they cannot make the occasion an excuse or cloak for the creation of monopolies to the public disadvantage.

Death of Hon. Gardiner G. Hubbard.

Just as this issue of the INVENTIVE AGE goes to press, we receive news of the death of the Hon. Gardiner G. Hubbard which occurred at his residence near this city, on the 11th inst. For the past fifteen years Mr. Hubbard has been very prominent in scientific, educational, philanthropic, and in all matters pertaining to the interests of this city and of the nation. It is for his interest and great usefulness in matters relating to inventions, that he will be especially remembered by our readers. Many years ago, while engaged in an extensive practice of the law, where he was partner of the late Benjamin R. Curtis, he gave much attention to the subject of inventions and patent rights, of which he made a thorough study. When Prof. Alexander Graham Bell patented the telephone, he appealed to Mr. Hubbard to take the management of the enterprise of putting it into practical use. Since that time Mr. Hubbard has had more to do with the successful carrying forward of the telephone enterprise than any other man, and its success is largely due to his able administration. In 1890, when it was proposed to hold a Centennial Celebration of the American Patent System, Mr. Hubbard was one of the men who made that event so memorable, and when the organization of the American Association of Inventors and Manufacturers, which immediately followed the centennial celebration, was perfected, Mr. Hubbard declined the presidency in favor of Dr. R. J. Gatling, and was made the first vice-president. In this capacity he has done most invaluable service in promoting the interests of the Patent System, and of the legitimate rights of inventors. His eminent services call for more adequate recognition than we can give at this time. In our next issue we propose to give the subject more suitable attention.

Another successful jacketing of a 13-inch gun, took place at the Washington navy yard on the 1st inst. This gun is for the battle ship Alabama, building at the Cramps' ship yard. The operation was successful in every respect. Eight of the same type of guns have just been completed and are soon to be ready for testing. These go on the fore and aft turrets of the Kearsarge and Kentucky. Twelve more will be ready within a few months for the Alabama, Illinois and Wisconsin.

Annual Meeting of American Association of Inventors and Manufacturers.

The forthcoming annual meeting of the American Association of Inventors and Manufacturers is to be held in this city on the 18th of January next. It will be remembered by our readers that at the last meeting, Dr. R. J. Gatling, the famous gun man, who had been the president of the Association for five years and had been largely instrumental in bringing the organization to its high state of usefulness, was compelled to decline the nomination for re-election tendered him, for the reason that his time was so largely absorbed by his new enterprise of making heavy ordnance for the government, and that Mr. F. H. Richards, of Hartford, was chosen to succeed him. During the year, Mr. Richards has been engaged in vigorously carrying out systematic plans to improve the Association and increase its usefulness. His well known ability as an inventor and engineer, and his large acquaintance among the leading inventors and manufacturers of the country, have enabled him to make most gratifying progress. He has secured many additions to the membership of the Association and has aroused much interest in its purposes.

It is expected that there will be a large attendance of members at the next meeting when important topics will be discussed. The Association has heretofore declared itself in favor of important measures of much interest to the patent system and all persons interested in it. The promotion of the undertaking to secure adequate quarters and larger examining and clerical force for the patent office, is one of these. Another very important matter is the proposition, made by the late Commissioner Seymour, for making a classified index of all patents. This is considered as of the most vital importance. As the records of the patent office now stand, it is well nigh impossible for any person to ascertain just what patents have been granted on any particular subject. Commissioner Seymour's proposition contemplated the appropriation of \$64,500 per year for five years, and in that time it was believed that complete classification could be made.

The Secretary of the Association has issued a notice that a proposed amendment to the constitution will be brought up at the January meeting. This amendment is intended to more clearly define and enlarge the scope of the Association's purposes and is as follows:

"The object of this Association is to maintain, foster and protect the patent system of the United States, to increase the efficiency of its operation, and the stability of patent property.

To accomplish these results, the Association aims:

To strengthen public opinion favorable to the patent system, by demonstrating the enormous advantages which have been derived by the people of the United States therefrom, in the increase of manufactures and material wealth which has resulted from new machines and methods produced under the stimulus of the legal protection afforded to inventions by the patent system of the United States.

To procure from Congress legislation authorizing the patent office, the only department of the government which pays all of its expenses out of its income, to spend so much of that income as may be necessary for the scientific, thorough and efficient examination of applications for patents, to the end that patents may be granted only for inventions undoubtedly new, and

To strengthen the legal remedies for the protection of such patents as may be issued after a thorough examination."

In carrying on the work of the Association, President Richards has not confined his efforts strictly to the members, but is endeavoring to enlist the co-operation of other prominent people. To this end he is sending the following circular letter to a large number of persons, whose replies to the question contained in it will be of value.

"It is proposed to prepare for publication, a statement setting forth the advantages derived by the people of the United States from the operation of the patent system, and clearly defining the purposes and methods of this Association in its work of maintaining that system and increasing its usefulness. This statement will be made up of facts furnished by reliable persons especially interested in patent property, and your co-operation is solicited. Will you please send to the Secretary, as early as convenient, in a letter not exceeding one thousand words in length, an answer to the following question:

"What actual practical benefit has the patent system of the United States been to you and those of whom you have a personal and positive knowledge?"

It is expected that a large number of interesting papers will be read and subsequent issues of the INVENTIVE AGE will give publicity to the proceedings and the papers presented.

An exchange reports that in an examination that was made of some "electric belts" sold by a street fakir, it was found that beneath a strip of gauze was a layer of dry mustard. When the wearer perspired a little, the mustard was moistened and set up a burning sensation, and the deluded victim believed a current of electricity was passing through him.

The weekly number of applications for patents in England exceeds 625.

ANOTHER GANG OF SWINDLERS.

How Gullible Inventors Throughout the Country Are Worked by Patent Sharks.

Another gang of patent sharks have been gathered in by the government authorities, through the vigilance of Post-office Inspector Holmes. The outfit includes Mr. John S. Thurman a patent attorney of Indianapolis, who was recently disbarred from practice before the patent office because of fraudulent operations. The gang of swindlers indicted by the federal grand jury at Indianapolis on the 18th ult, have been operating throughout the west, with headquarters at Cincinnati, Louisville, Indianapolis, St. Louis and "in the saddle." The men indicted at Indianapolis were John S. Thurman, E. T. Silvius and J. C. Bugess, known as the "black-smith." Thurman and Silvius were partners in patent law practice up to last January and there is an impression that Silvius is not as guilty as his associates in this matter.

The members of this gang arrested in Cincinnati were Alpheus Fay, C. B. Avery, doing business under the firm name of C. B. Avery & Co., and John Burnit a model maker. John Leavell, another member, was arrested in Louisville. Some of the parties have given bonds for appearance while others have been committed to jail in default.

The scheme of these so-called patent attorneys was to look over the lists published by the patent bureau in Washington relative to the patents allowed and thus secure the names and addresses of inventors. The attorneys would then write to the inventors, stating that they, the attorneys, had on their list prospective buyers of patents and asked the inventors to state the lowest sums they would take for their patents. The letters, which were nearly alike, also stated that the intended purchaser had been looking for just such a patent, as it was deemed better than anything else that was in the market. This would open up a correspondence. At about the second or third letter that the inventor received he would be told that he would have to get an abstract of the patent right drawn up, and that in order to have it done properly the inventor would be referred to another alleged patent attorney, who as it afterward developed was one of the partners in the scheme. The second attorney would then state that it required an advance payment of from \$5 to \$10 before the abstract could be delivered. The inventor would send the amount demanded and would be sent a bogus abstract, or perhaps no abstract at all. If the "sucker" was still kept on the list the next step would be to tell him that the prospective purchaser of the patent lived in Louisville, Ky., and that a trip would have to be made there in order to talk over the matter as, so the inventor would be told, business had got to that stage where it would be impossible to transact it by letter. If the inventor could not come himself he was told to send the money necessary to defray the expenses of his attorney, and the latter would make the visit. In nearly all cases where the inventor would send the fare the attorneys would not make the trip, but pocket the money. The next stage in the game was to tell the inventor that the prospective purchaser was all right, but that before the inventor could be put into correspondence with him the attorney would demand that as his pay he be given one-tenth interest in the patent. The necessary papers would be drawn up and then the inventor would be given the name of the intended purchaser. The latter after corresponding for a short time would tell the inventor that he must show that he had a clear title to the patent. Of course, it was incumbered with one-tenth, which he had given to his attorney. The latter would inform the inventor that he would release himself from any further interest in the patent if the inventor would pay him say \$100 or more if possible. If the inventor fell into the trap the would-be purchaser would suddenly give some excuse for not wanting the patent, and there the matter would end. Then again the inventor would be made to sign over the patent right before any money was paid over and the patent would be stolen.

Inspector Holmes has evidence to show that Avery & Co., have been sending out about 1,000 letters a month to inventors. He has also accumulated a large amount of evidence about similar cliques of swindlers throughout the country and from now on it is expected a fierce warfare will be waged by Uncle Sam on these disreputable frauds. Thurman, the Indianapolis attorney, was disbarred, on complaints lodged against him by Indiana inventors charging that he had failed to pay to the government fees for taking out patent rights that had been intrusted to him by his clients.

A Frenchman, M. Carsins, has patented a process for the sterilization of milk, beer, and other fermentable liquids, by driving through them a cur-

rent of oxygen gas in a closed vase. He has also contrived to produce a new beverage, which he has named "Champagne-milk," and which he and his friends anticipate will command a ready and considerable sale in all the markets of Europe. Skim-milk is sweetened with syrup and flavored, then put into a closed vessel, where it is sterilized by means of oxygen gas, and finally "champagne-ised" by the introduction of carbonic acid gas.

Automatic Electric Gate and Signal.

Patents have been granted J. M. Williams, Thos. P. Kinney, and H. W. Kinney, inventors, and assignors of one-fourth interest to Jas. A. Henderson, for automatic electric gates for railroad crossings and block signals, and for an automatic electric recorder for use in connection with any gate or signal. The mechanism is exceedingly simple and efficient and great ingenuity has been shown in making the combination and perfecting the two systems of protection. While automatic, the apparatus is *always under control* of the engineer, which is a decided advantage over the methods of operating by the tread of wheels. These two systems have decided advantage over other electrical appliances, in that they are not affected by dust, rain, snow or ice, or electrical disturbances and lightning. They can be relied on to work properly under all such conditions. A critical examination shows no flaws in these systems and every imaginable condition has been fully covered.

The results gained are absolute safety for the public at crossings and a great saving in operating expenses over pneumatic gates and flagmen. Furthermore the apparatus is susceptible of many other applications. Signals are used with the gates to show the engineer of an approaching train the position of the gate arm, as far from the gate crossing as may be desired, so he can be prepared to stop if the track should be obstructed by a train. In case of imprisoning between two gates, this is also shown the engineer and he can open the gates, while slowing up at any distance from the crossing, thus allowing the train to escape, without damage or fright.

Each gate and signal is separated and works independently of the others, and in case a gate should be disabled and fail to protect the crossing, a "danger signal" is shown the engineer, who is thus kept timely and much better informed of the situation at the crossing than is possible by a flagman.

By use of the block-signals collisions are prevented except by criminal negligence of the crews of both trains. The approaching train always knows the situation in the block regardless of telegraphic orders or information from the telegraph operators, hence this system acts as a check on dispatchers and operators as well as trainmen. No stealing into distant sidings on the approaching train's time, but that this is indicated to the approaching train and collisions incident to such conditions are thus prevented by the timely knowledge.

Each train sets an advance signal as well as a rear signal and by use of "tell-tales" the trainmen knows exactly how the signals stand at both ends of the block.

Two trains under this system can not set the signals at the same time and thus enter the block without knowledge of the other being there. This removes, what has been a most serious obstacle in the way of adoption of automatic appliances by railroads. Blocks can be made of any desired length and each block is separate and independent of every other arm.

The Automatic Electric Recorder shows the position of the gate arm and signal paddle. The record is made on a strip of paper by closure of a circuit caused by an animal or train passing over a platform placed in the road or highway, when used with a gate, or by a train running over a press-button at the side of the rail when used with signals.

Thus if an attempt is made to cross the railway while the gate is closing, this fact will be recorded and the danger signal warns the engineer. When used with block signals carelessness in running by danger signals is recorded.

The full size model works satisfactorily and the system will meet with merited success. Temporary arrangements have been made with a well-known signal company for the manufacture of these appliances. The firm of Mason, Fenwick & Lawrence, patent law specialists of Washington, D. C., are the attorneys for the owners of these patents, who have organized the Automatic Electric Gate and Signal Co., of Danville, Va.

The National Association of Manufacturers of the United States are preparing to establish a sample warehouse for American goods in Kobe, Japan. Arthur G. Boyer is now in Japan working to that end.

The Experience of Inventors.

I am afraid the history of inventions—like all other histories—has never yet been properly written, and never will be. Histories of inventors and inventions—again as other histories—must of necessity touch mostly upon successes. The records of failure are few and far between in the pages of books. Even were it otherwise, the known records of failure would not be one tithe of the known records of success. I can well call to mind now, as though it were but yesterday, the years when I was starving in the streets of London. I had, as happens to so many other poor devils, come down in the world; I was ragged and outcast, friends knew me not, my acquaintances were as ragged and as outcast as myself—altogether I was in a truly deplorable condition. I became shy and nervous; did I meet a friend of former days who might have extended a helping hand, I slunk away from his glance, and yet I was every bit as good a man as I am now in these days of comparative success and affluence. How I recovered my position does not concern the reader; suffice it that I did; but had I not, the world would in all probability never have heard of me again, and history would certainly not have recorded me amongst her list of "life's failures."

Perhaps the inventive-minded reader has already grasped what I mean to convey by this pardonable personal reminiscence; that self-reliance once lost, only the most marvelous turn of fortune's wheel can avail one. My inventions—small, mayhap, yet lucrative—were many of them perfected in my days and nights of reverse. At that very time, I had within me ideas which naught save diffidence prevented me from almost at once realizing upon. Given an absolutely sound idea, capital can be made of it. I do not deny that the poverty-stricken inventor must be prepared to part with a very considerable share of whatsoever profits may accrue, but then, surely better a five-pound note (with a chance of at least a decent wardrobe and a certain amount of sartorial or tailor-made self-reliance) than nothing. Invention number one may bring in, say, a five-pound note; invention number two will then probably bring in ten times that amount, and so on in increasing ratios. Preliminary expenses are not now such deterrent features of inventions as they once were. In years gone, to divulge an idea was probably to lose it; now the inventor can divulge with perfect confidence and certain benefit to himself if his idea be worth anything at all.

Self-reliance is of primary importance to the inventor. Let him convince himself first that his ideas are sound and practicable, and he will have fought half the battle of life. Let him not approach the public—represented probably by a capitalist—in a shambling, hesitating manner; his inward conviction must carry him through, and he must be prepared to launch boldly forth into the beauties of his special idea. Convince yourself and you convince others. Assure your benefactor, or your patron, or your capitalist, whatever he may be, that a fortune lies in your invention, turn his nays into yeas—stick to it and budge not one inch—he will end by sticking to you, and then—well, make the best terms you can with him!—"Inventor," in *Invention, London*.

A New Illuminant.

The American consul at Crefeld reports an important discovery which, it has been claimed, will in time do away with the present system of illuminating public places, etc., with the electric arc light. The details, briefly, are as follows:

Mr. Ernest Salzenberg, director of the gas works of the city of Crefeld, has invented an improvement in incandescent gas-burners, which relates to the production of incandescent gaslight, based upon the discovery that, when the pressure of the gas is considerably increased upon the incandescence body, the said body emits a golden-yellow light, very agreeable to the eye, displaying objects in their natural colors.

The gas is supplied to the burner at a pressure of about $3\frac{1}{2}$ atmospheres, the burner, to withstand this high pressure, being of special construction. A single incandescent jet of the ordinary size can emit a light of much more than 1,000 candlepower. The light is of such intensity that a person is enabled to read the finest print at a distance of 100 to 150 feet.

The inventor claims that the cost of his incandescent light of 1,500 candlepower is only $4\frac{1}{2}$ cents per hour, while that of the ordinary electric light of 400 candle power is (in Germany) 14 cents per hour. In the apparatus constructed by Salzenberg, a hydraulic pressure of 3.5 atmospheres, and even more, may be forced through the improved Auer burner. The invention is, however, only applicable where waterworks exist. Mr. Salzenberg has already applied for letters patent in the United States.

INVENTIUS ~ ~

AN EXTRAVAGANZA.

BY EDWARD P. THOMPSON, M. E.

Inventius is a person of renown and of very small statue, so very minute indeed, that were he enlarged a thousand times, he would still be invisible under the most powerful microscope. He lacks limbs and body, possessing only a head, and, by the mere power of the will, can transport himself from one part of the world to another, so that in a race with light, he would win as easily as a snail competing with Philadelphia. He can travel as fast as thought, whose great speed in comparison with that of light, is such that while the latter takes fifty years to come from the North star, our imagination can place us upon that heavenly body, and, in an instant, transfer us to any point of the earth, or of the universe. In a similar inconceivably short period of time, can Inventius travel.

The earliest performances of Inventius are not certainly known, and can only be conjectured, as a geologist does from the various kinds of records, exhibited by the earth and its contents. For example, the wheel is a record, which by reasoning, according to the theory of probabilities, shows us that Inventius, at a remote age, laughed at some savages, or Egyptians probably, for laboring under a heavy burden, in transporting a log by carrying it on their shoulders. He controlled the workmen's minds. He applied the principle of analogy, of a section of a log carrying itself down hill by rolling, rather than sliding, and concluded that if it could carry itself, it could convey loads. Beginning with this idea, in the transportation of rocks, and other burdens, he continued the application to the conveyance of kings and warriors in chariots.

So wonderful is this freak of nature, that it becomes impossible to exaggerate any of his characteristics. He does not need the X-rays in order to enable him to see through iron. He has been known to travel all over a steam engine, inside and out, while in operation, throwing himself into the boiler, and studying the effects, and making calculations upon the various forces which serve to perform useful work. He has entered the cylinder. He has ridden upon the slide valve, back and forth, not for idle curiosity, but to discover the difficulties, due to too much or too little lead or cut off, with the ultimate purpose of obtaining what the engineering world would pronounce, the perfected steam engine. He has not yet arrived at this grand result, and he may often be found prowling around about and inside of the engine, whirling with the wheels, riding on the eccentric, and making himself generally at home, and with the praiseworthy desire to conquer all difficulties, which, fortunately for the public, he is gradually overcoming.

In order to further illustrate his great penetrating power, both physically and visually, it is stated on good authority, that he was on one occasion found looking through the wall of a blast furnace containing molten metal, slag, ore, etc., all at a white hot temperature, but not being satisfied to remain outside he jumped into the furnace, and, occupying less space than the atoms composing the heated mixture, he moved about among them, and studied the chemical actions. He has sounded the deep, and sailed among fishes and whales, and on the back and inside of the electric sub-marine log which is one of his naval inventions.

It is a peculiarity of his disposition, that he never really knows whether he will gain any advantage by making these studies of mechanical and chemical organizations, but experience has taught him that by acquainting himself with all the details for the purpose of making some improvements, novel ideas occur to him. He must have become rather inflamed, and, therefore, excited in developing the various gas and water-gas generating plants. One of Inventius' experiments in the furnace, showed that the *burning out* of some of the carbon from pig-iron resulted in such positive advantages that the Bessemer process, by which it has always been called, has become common throughout all countries in which steel is manufactured. Formerly, carbon was *added* to pure iron to make steel.

While devising and inventing industrial improvements, Inventius also deducts principles, which are often useful to him in multiplying inventions. The Bessemer invention illustrates the principle of reversal, and consequently, he goes about, here and there, having in his mind, the possibility of making new inventions by this principle. The electrician can call to mind many examples, some of the most

prominent cases of reversal being the dynamo as being the reverse of the electric motor; the under running trolley being the opposite of the over-running trolley. The present electric transformer, for changing a high pressure current to a lower tension is but the reversal of the old induction coil of Faraday. The electro-plating of metals from a liquid is the converse of obtaining an electric current by dissolving a metal. The old primary battery is the reversal of the present storage cells.

When the first man was born, Inventius came into existence, and began his most useful labors immediately. He has been busy ever since, but not regularly so. During war time he is rather idle, although not necessarily entirely unoccupied. He lives during peace, where others die in battle. The longer the term of peace, the greater the number and utility of his creations. During the past century, especially in the United States, where but one extended war has occurred, he has brought into existence more articles in his line, than in any continuous thousand years previously. Why this is so, he says it is not in his domain to explain. He leaves the discussion to historians, only hinting that the maiming of industrial progress is but one of the many curses of this cruel method of settling international disputes.

As if to compensate for the deadening effects of war upon his disposition and inclination, he has been overworked by his creative duties since his advent into the head of one to whom he communicated not individual inventions, but the key to teaching others, by suggesting to him, an idea that was so simple that the great man himself was surprised that it had not occurred to any one before. Inventius showed him how people should interpret nature, for the discovery of new lands full of facts, which would become useful for the building up of science, and, therefore, indirectly advantageous for the growth of the industrial arts. No sooner had Inventius opened this mine of wealth than his line of business began to increase enormously, and continued to do so, until at the present day, it is as much as he can do to fulfill the very engagements that he himself brought about. Like a man starting a boulder down hill, and not being able to stop it, so Inventius could not now, even if he desired, cause intentional progress to halt. How could the instrument, for telling the metallurgist the temperature of his red hot furnace at any moment, have been invented, if it had not been for Bacon, who if living might broadly claim it, and who was the primary cause, for no class of instrument perhaps, has made use of so many of the principles of heat as the pyrometer, and the principles are indirectly the outcome of Lord Verulam's apothegms.

Bacon's mind is not the only one into which Inventius has conveyed a broad idea, which has resulted indirectly in the multiplication of inventions. In many instances he has published ideas which, when communicated, have set herds of inventors to work, resulting in many valuable, although subordinate, inventions. For example, by his controlling power, he instituted in reality, what had before appeared only in dreams, and fairy stories, for he showed Bell how a metallic thread, stretched from town to town, could enable people located at opposite ends, to hold conversation with one another, so perfectly that the voice of a father could be recognized by his son practically as instantaneously as if the talkers were in the same room. This notable event occurred in the seventies, but subsequently the minds of men were so numerous and enthusiastically directed into the same channel, that it was as much as Inventius could do to pop from one head to another, in order to pop ideas thereinto, concerning all the detail apparatus, for putting into practical execution, that which people at first would not believe to be more than a visionary scheme, and only equalled by Prince Ali's tube, through which, by the mere act of looking, any object whatever, and at whatever distance, could be seen the same as if present. Did Inventius control the author of the Arabian Nights, to mention this all-seeing tube as a prophecy of those measuring instruments, which, although not exactly a tube, yet permit a superintendent to sit comfortably in his sleepy-hollow chair in the office, and read on the wall, the pressure of steam existing in the steam engine boiler located far away, or to see the variations of temperature in another building, etc. What is the greatest modern work of Inventius? Impossible to decide, but if this is to be adjudicated upon the ground of maximum utility, let us remember the occasion when a wire was first wound and wound, round and round, upon a piece of iron, for the production of a talisman, which by the rotating, always in the presence of a similar talisman, would generate an invisible and noiselessly moving fluid, having the power when properly directed over a continuation of the same wires, to convey men to their homes from their business, to light their lamps, and maintain a luminous glow and to illuminate their streets like the sun; also to pump their water, or to convert the force of the weighty water, into a weightless fluid, and transmit it from Niagara Falls to Buffalo and besides

this, as though not enough important to do so, and equally wonderful feats.

Aside from great utility, Inventius has accomplished something recently, and something of curiosity any former work, however so it may be, the history of the past we may search for in the bones through flesh and blood, he can enter the minds of people, and make his abode there, so that he can think best and he has control of the thinking department of the mind, and can command it to suit himself, as a juggler guides his material objects, and the mind will obey him, and do whatever he commands. To those who are acquainted with the circumstances, does it not seem as if Inventius mesmerized or hypnotized a certain Bavarian by some invisible means, commanding him to drape, with a shroud, a coffin-shaped glass bulb, to banish all light from the room, thereby bringing on a funereal-darkness and gloom, and then to direct his eyes to a ghostly object which was, to his great horror, a luminous picture of the bones of his own hand, affording a realization, nearer than ever before, of John Kenrick Bangs' best ghost story?

The world which we inhabit, is noted among other planets, for being nearly all water. Although in such great quantity, and although a drink that falls freely upon all, the just as well as the unjust, yet those who live in certain towns, are, unfortunately, obliged to realize it as a commodity, the same as other drinks, and like them, to be measured out by the glass-full, and to be purchased before taken. Pity the man who has a watermeter in his home! The cleaner his house, his raiment, and the temple of his soul, the greater the water bill. To economize, is to increase the dirt. Every pint of water he draws from the faucet, records its tale upon an ever watchful instrument, which may be suspected of misrepresentation, as well as the oft accused gas meter. Nevertheless, when all sides are fairly viewed, the automatic watchman is of advantage both to the consumer, and to the water company. Inventius is the patentee of almost as many such devices as he is of gas meters.

Inventius has a two-fold character. He cannot only invent, but he can discover. To discover is not to find something that is new, but specifically, and almost literally, as the word indicates, to take off the cover of some containing vessel, so that the contents may be exposed to public view. What about the cause of a discovery? If no one knew that it existed underneath some cover, what would then suggest the removal of that cover? The first inclination has been in many cases, to attribute a discovery to accident, and sometimes to a mysterious agency, but however reasonable this may be as an adjunct, yet, Inventius if rightly understood, seldom admits that he ever found any hidden treasure without a predetermined search for something, either directly, or indirectly. Behind the mask of an astronomer he has often pointed his powerful telescope into the starry firmament for the sole purpose of finding some wanderer, not hitherto observed, but instead of full honor and credit being given to him, personally, when he actually finds a new comet or planet, he receives only a part thereof, and luck the remainder. People, however, are becoming wiser and wiser in succeeding generations.

Inventius, though so quick in annihilating space, is not as rapid in arriving at the perfection of an invention, as might, at first thought, be supposed. Jewish history records some of his works. The first dynamo-meter was made sometime before the advent of Ezekiel, who states in his book, Chapter V, first paragraph,—

"Then take the balances, to weigh and divide the hair."

When he made this original and first balance, he undoubtedly considered himself very clever, in being able to measure an invisible force. Finally, Inventius is a personification of the faculty of inventing.

The "Age" Thoroughly Appreciated.

The following letter explains itself and is so complimentary we will be pardoned for publishing it:

INDIANAPOLIS, IND., Nov. 22, 1897.

GENTLEMEN: We have looked over the November number of the INVENTIVE AGE very carefully and we only see one mistake in the paper. The error appears at the top of the first page where it reads as follows, "\$1.00 per year" the \$1.00 should be \$5.00 per year.

You can put our name down as a constant subscriber and if you raise the price of the paper to \$5.00 per year and keep it up as good as the November number, we will be constant subscribers at that price.

Never did your paper contain so many very valuable articles as it does this month.

Enclosed find \$2.00 for which we will thank you to give us one year's subscription for \$1.00 and send us one dollar's worth of the November number. Yours truly,

Mr. Astor's huge table, made of a single sectional piece cut out of a California redwood tree, has arrived at Clevedon. It was brought by road from London. The slab weighs 13½ tons, and stands 16ft high.

DIRECTORY OF PATENT SOLICITORS.

Alphabetical list of practitioners who have registered and are therefore in good standing before the U. S. Patent Office. They are commended to the favorable consideration of inventors, manufacturers, promoters and others.

AITON & WOOD— 907 G st., Washington
ALEXANDER, THOMPSON H.— 607 Seventh st., Washington
ANDERSON, E. W. & CO.— 700 7th st., Washington
ATKINS, JOSEPH L.— Wash. Loan & Trust Bld'g, Washington
BACON, L. SEWARD— 623 F st., Washington
BALDWIN, WM. D.— 25 Grant Place, Washington
BAKER & CO., R. J.— 2207 Cleveland Place, Baltimore, Md
BARTLETT, WALLACE A.— cor. Seventh and F sts., Washington
BEALE, J. FORBES— McGill Bld'g, Washington
BELT, C. T.— Warder Bld'g, Washington
BENJAMIN, FREDERICK— Warder Bld'g, Washington
BLISS, H. H.— 705 G st., Washington
BRADFORD, CHESTER— 1233-36 Stevenson Bldg, Indianapolis, Ind
BROWNE, ARTHUR S.— Wash. Loan & Trust Bld'g, Washington
BROWNE, FRANK L.— Pacific Bld'g, Washington
BUELL, JOS. W.— Inventive Age Bld'g, Washington
CALVER, HENRY— 501 F st., Washington
DEAN & SON, L.— McGill Bld'g, Washington
DIETERICH & CO., F. G.— 601 F st., Washington
DOOLITTLE, WM. H.— Atlantic Bld'g, Washington
DONNELLY & CO., CHAS. J.— 504 E st., Washington
DOWELL, ARTHUR E.— 607 Seventh st., Washington
DOWELL, JULIAN C.— Wash. Loan & Trust Bld'g, Washington
DUBOIS, RHESA— Inventive Age Bld'g, Washington
DUBOIS, ADDISON G.— 800 H st., Washington
DYER, FRANK L.— National Union Bld'g, Washington
DYER, LEONARD H.— National Union Bld'g, Washington
DYRENFORTH, R. G.— 602 F st., Washington
DYRE, WM. E.— McGill Bld'g, Washington
EDSON, JOSEPH R.— 927 F st., Washington
FRASIER, ROBT. T.— National Union Bld'g, Washington
FISHER, ROBT. J.— 614 F st., Washington
FISHER, SAMUEL T.— Atlantic Bld'g, Washington
GIBBONEY, J. W.— Lynn, Mass.
GILLIS, LYLE M.— 612 F st., Washington
GLASCOCK & CO.— 626 F st., Washington
GOLDSBOROUGH, JOHN K.— McGill Bld'g, Washington
GOOCH, CHAS. J.— 615 F st., Washington
GREENE, WALLACE— McGill Bld'g, Washington
HALSTED, JOHN J.— McGill Bld'g, Washington
HENDERSON, WM. G.— 501 F st., Washington

HOWARD, GEORGE H.— McGill Bld'g, Washington
INVENTORS LAW COMPANY— Inventive Age Bldg, Washington
E. C. GOODWIN, Pres.
JANNUS, FRANKLAND— Atlantic Bld'g, Washington
JOHNSON, TITIAN W.— 637 F st., Washington
KEMON, SOLON C.— Pacific Bld'g, Washington
KNIGHT, HERVEY S.— McGill Bld'g, Washington
LACEY, R. S. & A. B.— 629 F st., Washington
LORRAIN, JAMES G.— Norfolk House, Victoria Embankment, London, England
LYONS, JOSEPH— McGill Bldg, Washington
MARBLE, EDGAR M.— Wash. Loan & Trust Bld'g, Washington
MASON, FENWICK & LAWRENCE— 602 F st., Washington
McINTIRE, WM. C.— 614 F st., Washington
MYERS, WM. H.— 1006 F st., Washington
MUZZY, WM. H.— 921 F st., Washington
NEALE, CHAS. A.— Wash. Loan & Trust Bld'g, Washington
NOTTINGHAM, J. R.— 637 F st., Washington
O'FARRELL, FOWLER & O'FARRELL— 1425 N. Y. Ave., Washington
O'MEARA & CO.— Opp. Patent Office, Washington
OSBORNE, J. A.— 579-581 Arcade, Cleveland, Ohio
PECK, HUBERT E.— 629 F st., Washington
PENNIE, JOHN C.— McGill Bld'g, Washington
REDMOND, WM. A.— McGill Bld'g, Washington
RITTER, FREDERICK W. JR.— McGill Bld'g, Washington
ROBERTSON, THOS. E.— 605 Seventh st., Washington
ROBERTSON, T. J. W.— 605 Seventh st., Washington
ROGERS, WALTER F.— Atlantic Bld'g, Washington
SEYMOUR, HENRY A.— 913 F st., Washington
SNOW & CO., C. A.— Opp. Patent Office Washington
SOMES, FRANK C.— 514 F st., Washington
SPEAR, ELLIS— 1003 F st., Washington
STERLING, HUGH M.— McGill Bld'g, Washington
SWETT & CO., OTIS D.— 529 7th st., Washington
TALBERT, HUME E.— 501 F st., Washington
THOMPSON, EDWARD P.— Temple Court, New York
TURRI, GEORGE G.— Sun Bld'g, Melbourne, Australia
WHITAKER, JESSE H.— 610 F st., Washington
WHITTLESEY, GEORGE P.— Atlantic Bld'g, Washington
WIGHT, LLOYD B.— 25 Grant Place, Washington
WILKINSON, ERNEST— Atlantic Bld'g, Washington
WILLSON & CO., H. B.— LeDroit Bld'g, Washington

Finds It Satisfactory.

CRANFORD, NEW JERSEY, Nov. 29, 1897.
The Inventive Age.
GENTLEMEN: "Manual on Inventions" has been received and read. I find it very satisfactory.

Yours truly,
E. BOOKHOUT.

Change of Signature on Drawings.

Acting Commissioner Greeley calls special attention to Order No. 480 in relation to change of signature on drawings, in which it is directed that the practice of erasing the names of attorneys, or writing upon the drawings the names of attorneys subsequently appointed, so as to make it appear that their names were present when the drawings were originally filed, shall be discontinued.

Monthly Issue of Patents.

There were issued during the period comprising the four weeks, ending Dec. 7, 1897 the following:

Patents.....	1729
Designs.....	175
Trade-Marks.....	124
Reissues.....	4
	3,032

Attorneys Disbarred.

The following attorneys have been disbarred from practicing before the Patent Office:

John L. Thurman, Indianapolis.
A. W. Wilkins, Fayetteville, N. Y.
S. W. Thomson, Vicksburg, Miss.
O. W. Curtis, Antwerp, Ohio.
H. Roscoe Wheeler, Chicago.
J. T. Lynch, Houston, Mo.
D. F. McMartin, Oklahoma City.
Wilbur C. Benton, Cincinnati, Ohio.

The Columbia calendar pad for 1898 is the first to arrive and is up to its usual standard of excellence—a highly attractive and convenient desk pad. Obtained by sending five 2-cent stamps to the Pope Mfg. Co., Hartford, Conn.

For your boy—nothing will please more than the Dollar Watch mentioned in another column and in the way of amusement and instruction something in the electrical line—"The Mechanic's Complete Library," "Edison's Encyclopedia." Read list of electrical books for sale. New Book for Inventors is the best work published for inventors who have not yet successfully promoted their inventions.

A subscriber writes from Dayton, Ohio, and says, among other things: "I regard the INVENTIVE AGE of great benefit to the patent practice, in upholding the better methods and exposing and condemning the unscrupulous schemes that have of late been practiced by a certain class of 'agents' or 'attorneys' to the disparagement of the profession."

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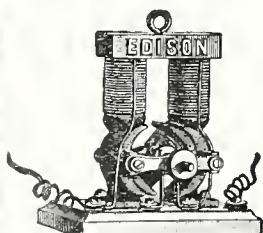
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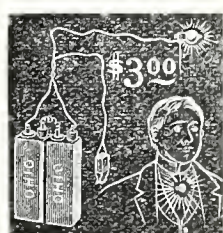
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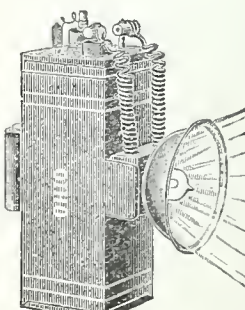
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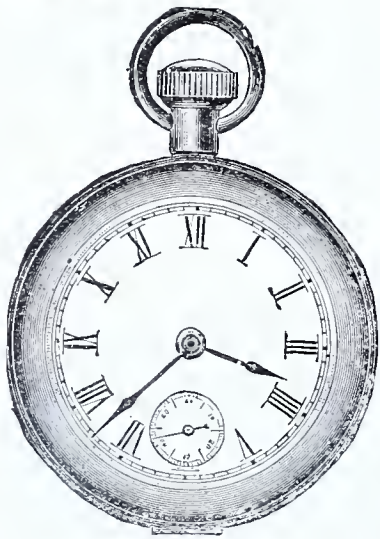
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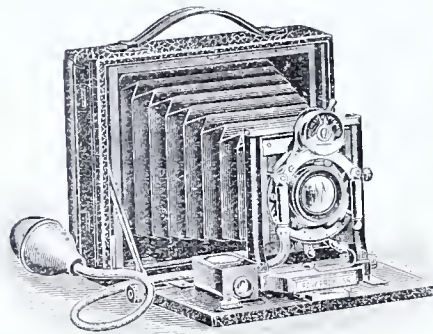
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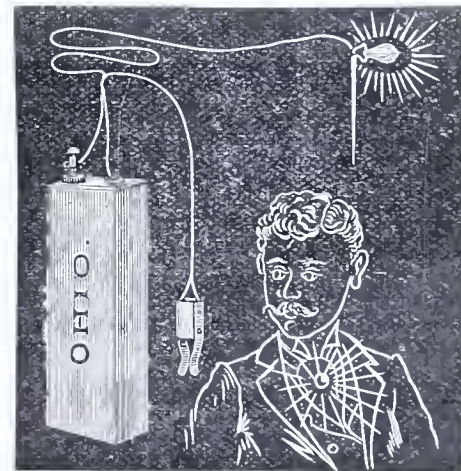
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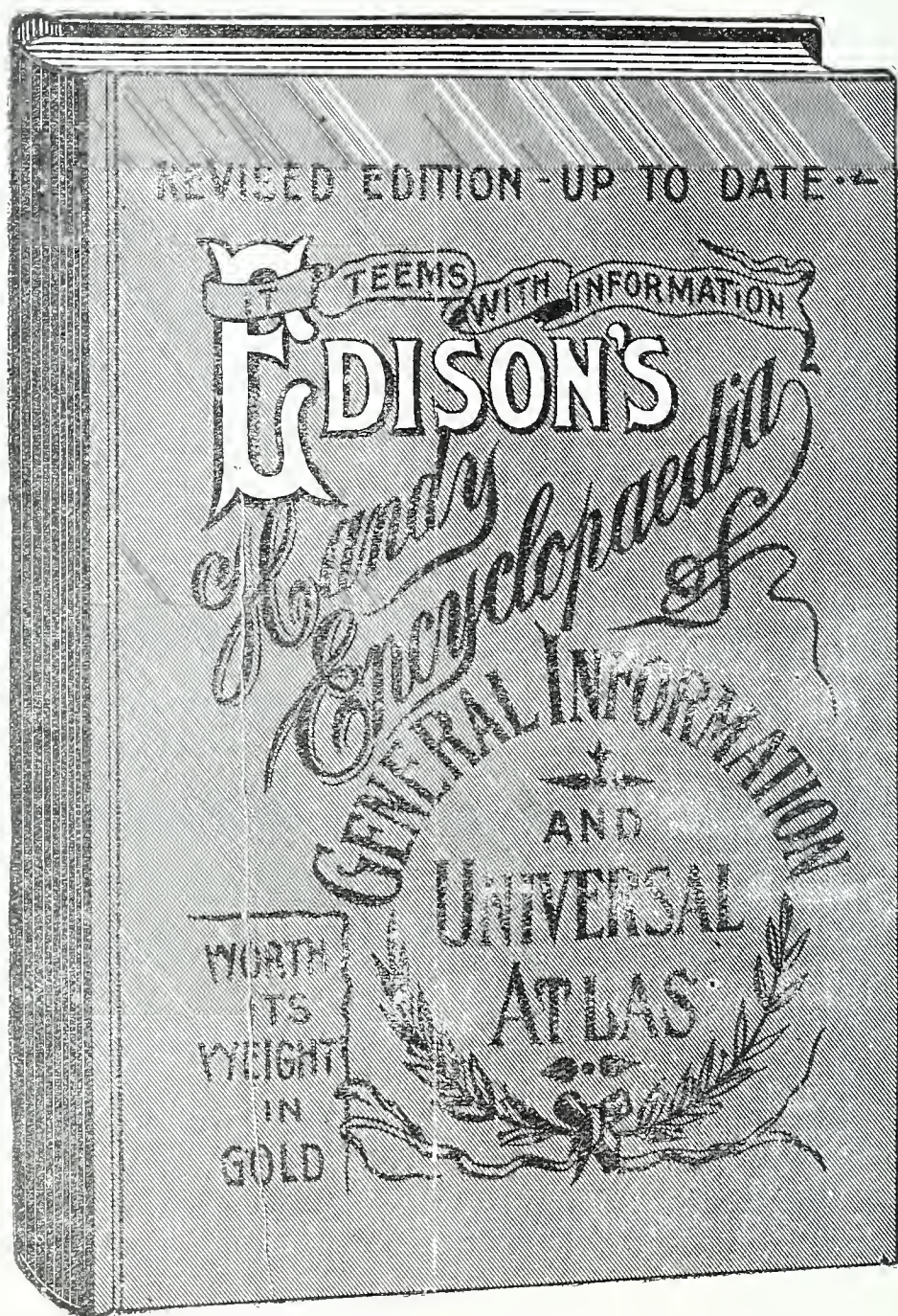
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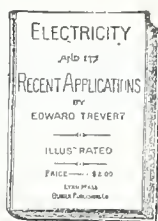
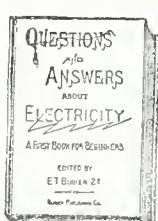
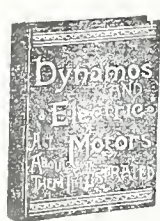
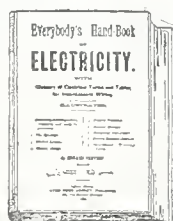
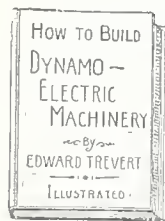
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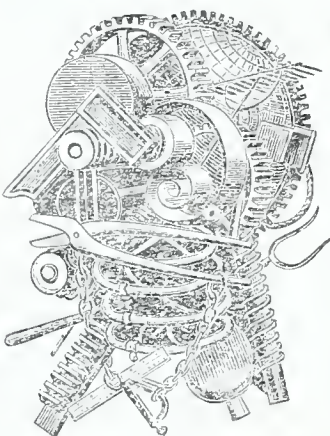
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